

POPTAC HANDBOOK
July 21, 2006

Arizona Department of Economic Security
Research Administration
Population Statistics

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BACKGROUND

INTRODUCTION

Population estimates and projections approved by the Director of the Arizona Department of Economic Security become the official estimates and projections for the State of Arizona. They are used by all state agencies as well as local governments, businesses, public utilities, and other for a wide variety of purposes such as marketing, site selection, and regulatory compliance.

Current year population estimates forwarded to the Economic Estimates Commission by December 15th are used to set the expenditure limitations of county and municipal governments. Local governments may submit the 2006 DES estimates for state revenue sharing. The estimates and projections are an annual update of the census, and are for resident population.

WHAT IS POPTAC?

POPTAC is the acronym for the POPulation Technical Advisory Committee. It was originally established in 1977 by a Governor's Executive Order to review and approve the official population projections for Arizona. In 1988, a new Executive Order issued by Governor Mofford included some changes in the membership, expanded the committee's responsibilities to include both population estimates and projections, and required POPTAC to revise and make an advisory recommendation on both estimates and projections to the DES Director. In 1995, the current Executive Order, issued by Governor Symington, introduced a new term, population "updates". The current Executive Order also changed the frequency of production of estimates and projections from an annual schedule to only twice per decade: once after the decennial census and once after the mid-decade census. The population "updates" are annual.

MEMBERSHIP

According to the executive order, the following agencies and institutions have one voting representative on POPTAC:

Department of Commerce	Maricopa Association of Governments
Department of Economic Security	Pima Association of Governments
Department of Education	Northern Arizona Council of
Governments	Western Arizona Council of
Department of Health Services	Central Arizona Council of Governments
Governments	Southeastern Arizona Governments
Department of Revenue	
Department of Transportation	
Organization	
Department of Water Resources	County Supervisors Association of Arizona
Arizona State University	League of Arizona Cities and Towns
Northern Arizona University	Inter-Tribal Council of Arizona
University of Arizona	The Navajo Tribe

Nonvoting members may also be added to the committee by a majority vote of the members. The following agencies and institutions have nonvoting representatives on POPTAC.

City of Phoenix	Yuma Metropolitan Planning Organization
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RESPONSIBILITIES

The **Department of Economic Security (DES)** must prepare population estimates and projections for the state and its counties and municipalities.

The **Regional Councils of Government (COGs)** may provide DES the population estimates and projections for all cities, towns and unincorporated areas within their designated regional planning district.

The **Population Technical Advisory Committee (POPTAC)** must review and make an advisory recommendation to the DES Director on the population estimates and projections prepared by DES and the COGs.

The DES Director must approve the population estimates and projections.

STANDARDS

Population estimates and projections are prepared according to standards established by DES and recommended by POPTAC.

PROCESS

ESTIMATES

Periodically, throughout the year, input data required for the estimates are collected and distributed for regional review for completeness and accuracy. After the regional review process is completed, current year estimates for state, counties and municipalities are completed by DES and the COGs, and distributed to POPAC for its review and recommendation. The regional data review process and the POPTAC review process follow an annual schedule.

The estimates are then forwarded to the DES Director for approval. Once the estimates are approved by the DES Director, they are released for distribution and forwarded to the Economic Estimates Commission by December 15th.

PROJECTIONS

Once population estimates are approved, they are used as input for the population projections. Preliminary county projections are prepared by DES and are distributed to POPTAC for review. After comments and concerns have been resolved, the county projections are completed and distributed to POPTAC for final review and recommendation. The county projections are then forwarded to the DES Director for approval.

Once the county projections are completed, sub county projections are prepared by DES and the COGs are distributed for regional review. After the regional review process, the projections are distributed to POPTAC for its review and recommendation. The sub county projections are forwarded to the DES Director for approval. Once the estimates are approved by the DES Director, they are released for distribution by May.

2006 POPTAC Meeting Schedule

<u>Date</u>	<u>Time</u>	<u>Location</u>
January 27, 2006	10:30 a.m.	Director's Conference Room, No. 104 Department of Economic Security 1717 West Jefferson
March 22, 2006	10:30 a.m.	Director's Conference Room, No. 104 Department of Economic Security 1717 West Jefferson
September 29, 2006	10:30 a.m.	Director's Conference Room, No. 104 Department of Economic Security 1717 West Jefferson
December 1, 2006	10:30 a.m.	Director's Conference Room, No. 104 Department of Economic Security 1717 West Jefferson

Library Reference

**Municipal Corporations Key 407(1) et seq.
C.J.S Municipal Corporations
Section 1296, 1339**

Section 20 Expenditure limitation; adjustments; reporting

As used in this section

“Population” means either:

The periodic census conducted by the United States Department of Commerce or its successor agency, or the annual update of such census by the Department of economic Security or its successor agency.

A different measure or index of population adopted at the direction of the Legislature, by concurrent resolution, upon affirmative vote of two-thirds of the membership of each House of the Legislature. Such measure or index shall apply for subsequent fiscal years, except it shall not apply for the fiscal year following the adoption of such measure or index if the measure or index is adopted after March 1 of the preceding fiscal year.

Arizona Revised Statutes

ARTICLE 5. ECONOMIC ESTIMATES COMMISSION

Section 41-563 Expenditure limitations: determination by the commission: definitions

A. For political subdivisions the commission shall:

1. Determine and report to the governing board of each political subdivision subject to an expenditure limitation pursuant to article IX Section 20. Constitution of Arizona, prior to February 1 of each year, the following:

(a) The total of the estimated population of each such political subdivision as of July 1 of the prior year and the estimated population of any areas annexed by such political subdivisions thereafter, based on the population estimates developed by the Department of Economic Security. The population of any areas annexed thereafter must be estimated as of July 1 of the prior year.

2. Determine and report to the governing board of each political subdivision subject to an expenditure limitation pursuant to article IX Section 20. Constitution of Arizona, prior to April 1 of each year, the following;

(a). The total of the population of each such political subdivision as of July 1 of the prior year and the population of any areas annexed by such political subdivisions thereafter must be estimated as of July 1 of the prior year.

B. In this section:

4. "Population" shall be defined pursuant to article IX Section 20, subsection (3). Paragraph (f),
Constitution of Arizona.

ARTICLE 1. GENERAL PROVISIONS

Section 41-1954 Powers and duties

A. In addition to the powers and duties of the agencies listed in Section 41-1953, subsection d, the department shall:

14. Annually estimate the current year's population of each county, city, and town in this state using the periodic census conducted by the United States Department of Commerce, or its successor agency, as the basis for such estimates and deliver such estimates to the economic estimates commissions prior to December 15.
- 15 Estimate the population of any newly annexed areas of a political subdivision as of July 1 of the fiscal year in which the annexation occurs and deliver such estimates as promptly as is feasible after the annexation occurs to the economic estimates commission.

**STATE
State of Arizona
House of Representatives
Forty-first Legislature
Second Regular Session
1994**

**Chapter 314
House Bill 2375
Senate Engrossed House Bill
An Act**

RELATING TO POPULATION BASES STATE REVENUE SHARING.

Be it enacted by the Legislature of the State of Arizona:

Section 1 Use of Population estimates for state revenue sharing

In lieu of conducting a special census as authorized in sections 28-1501.02 and 42-1341.01, Arizona Revised Statutes, in 1995, any city, town or county may submit to the Director of the Department of Revenue, the Director of the Department of Transportation and the State Treasurer, its July 1995 population as approved by the Director of the Department of Economic Security population statistics unit. If a request is submitted for determination of population, that determination shall be utilized. Notwithstanding any provision of section 28-1591, 28-1598, 42-1341, and 43-206, Arizona Revised Statutes, to the contrary, upon submittal by a city, town or county, such population plus revisions, if any, due to annexations certified by the United States Bureau of the Census shall be used for distribution of state shared revenues for the requesting city, town or county beginning July 1, 1996 through June 30, 2001. For the purposes of this act, no appeal to the determination of the July 1, 1995, population determined by the population technical advisory committee to the Department of Economic Security shall be allowed.

Section 2 Reimbursement of expenses

Those cities, towns and counties which submit 1995 population estimates as outlined under section 1 of this act shall contract with the Department of Economic Security to have a sample survey conducted that verifies the existing housing stock, the local vacancy rate and the number of persons per household. The information collected by the sample survey will be used in calculating the local 1995 population levels for the contracting city, town or county. Such a contract entered into by the Department of Economic Security and a city, town, or county shall include provisions to reimburse the Department of Economic Security for all expenses in conjunction with the sample survey.

Section 3 Delayed repeal

This act is repealed on July 1, 2001

APPROVED BY THE GOVERNOR, APRIL 25, 1994
FILED IN THE OFFICE OF THE SECRETARY OF STATE

SENATE BILL 1020
AN ACT
CONFERENCE ENGROSSED

Be it enacted by the Legislature of the State of Arizona:

Section 1. Laws 1994, chapter 314, section 1. is amended to read:

Section 1. Use of population estimates or census for state revenue sharing.

In lieu of conducting a special census as authorized in sections 28-1501.02 and 42-1341.01, Arizona

Revised Statutes. In 1995, any city, town or county may submit to the Director of the Department of Revenue, the Director of the Department of Transportation, and the State Treasurer its July 1995 population as approved by the Director of the Department of Economic Security population statistics unit. Notwithstanding any provisions of sections 28-1591, 28-1598, 42-1341 and 43-206, Arizona Revised Statutes, to the contrary, upon submittal by a city, town or county such population plus revisions, if any, due to annexations certified by the United States Bureau of the Census shall be used for distribution of state shared revenues for the requesting city, town, or county beginning July 1, 1996 through June 30, 2001. For the purposes of this act, no appeal to the determination of the July 1, 1995 population determined by the population technical advisory committee to the Department of Economic Security shall be allowed.

Sec. 2 Laws 1994 chapter 314, section 2, is amended to read;

Sec. 2 Reimbursement of expenses.

CITIES WITH A POPULATION OF FIFTY THOUSAND PERSONS OR MORE ACCORDING TO THE MOST RECENT UNITED STATES DECENNIAL CENSUS, AND COUNTIES WITH A POPULATION OF ONE HUNDRED TWENTY-FIVE THOUSAND PERSONS OR MORE ACCORDING TO THE MOST RECENT UNITED STATES DECENNIAL CENSUS WHICH CHOOSE TO submit 1995 population estimates as outlined under section 1 of this act shall contract with the Department of Economic Security to have a sample survey conducted that verifies the existing housing stock, the local vacancy rate and the number of persons per household. The information collected by the sample survey will be used in calculating the local 1995 population levels for the contracting city, town, or county. Such a contract entered into by the Department of Economic Security and a city, or county shall include provisions to reimburse the Department of Economic Security for all expenses in conjunction with the sample survey.

ALL OTHER CITIES, TOWNS AND COUNTIES MAY SUBMIT THEIR JULY 1995 POPULATIONS FOR STATE REVENUE SHARING PURPOSES AS PROVIDED IN SECTION 1 OF THIS ACT WITHOUT CONTRACTING WITH THE DEPARTMENT OF ECONOMIC SECURITY.

Sec 3. Use of 1990 decennial census

In addition to the provisions of section 1 of this act, a city, town or county may submit a request to the Director of the Department of Revenue, the director of the Department of Transportation, and the State Treasurer that the 1990 decennial census shall continue to be used through June 30, 2001 for the distribution of state shared revenues to the city, town, or county pursuant to the provisions of sections 28-1591, 28-1598, 42-1341 and 43-206, Arizona Revised Statutes, even if the city, town, or county has conducted a special census as authorized in sections 28-1501.02 and 42-1341.01, Arizona Revised Statutes.

DESIGNATING THE DEPARTMENT OF ECONOMIC SECURITY AS THE STATE AGENCY
RESPONSIBLE FOR PREPARING OFFICIAL POPULATIONS ESTIMATES AND
PROJECTIONS FOR ARIZONA

WHEREAS, Arizona is concerned with the preparation of one set of official population estimates and projections on an annual basis for all purposes other than the distribution of state funds, except where provided for by State laws, and reapportionment of the State Legislature, and

WHEREAS, the Arizona Department of Economic Security was designated to represent the State of Arizona in a Federal-State Cooperative Program of Population Estimating with the U.S. Bureau of the Census; and

WHEREAS, there is a desire to revise Executive Order 77-5 designating the Arizona Department of Economic Security as the State agency responsible for population estimates and projections in order to clarify its authority

NOW THEREFORE, I, Rose Mofford, Governor of the State of Arizona do hereby designate the Arizona Department of Economic Security as the official population estimating and projecting agency for Arizona, with the following responsibilities:

1. The Department of Economic Security shall carry out the State's function of preparing official population estimates under the Federal-State Cooperative Program for Population estimating in cooperating with the U.S. bureau of the Census; and

2. The Department of Economic Security shall prepare annual population estimates for the State and its counties and municipalities; and

- 3(A) The Department of Economic Security shall annually prepare population projections for the State and its counties, cities, towns, and unincorporated areas which have current populations of 1,000 or more, covering a fifty-year period with single year projections for the current and immediately succeeding five years and for each decennial and mid-decade census year thereafter; and

- 3 (B) The Regional Councils of Governments may provide population projections for each decennial and mid-decade year up to twenty-five succeeding years, to the Department of Economic Security for all cities, towns and unincorporated areas within the designated regional planning district. Also, they may provide annual population estimates for all cities, towns, and unincorporated areas. The population estimates and projections provided by the Councils of Governments must be consistent with the Department of Economic Security's countywide projection figures and shall comply with standards and projections. These figures will be utilized by the department of economic Security in preparing the official population estimates and projections for cities, towns and unincorporated areas in Arizona.

- 3 (C) The Department of Economic Security will arrange for interagency contractual agreements for those agencies requiring special population projections not provided under subsection "A".

- 4 (A) The population estimates and projections made annually by the Arizona Department of Economic Security shall be subject to review and advisory recommendations by a Population

Technical Advisory Committee prior to submission to the Director as provided in section 5. Also, the standards established by the Department of Economic Security for developing population estimates and projections shall be subject to review and advisory recommendation to the Director by the Population Technical Advisory Committee before implementation. The committee shall be comprised of one voting representative from each of the following agencies and institutions.

Department of Commerce
Department of Economic Security
Department of Education
Department of Health Services
Department of Revenue
Department of Transportation
Department of Water Resources
Arizona State University
Northern Arizona University
University of Arizona
Each Regional Council of Governments
County Supervisors Association of Arizona
League of Arizona cities and Towns
Inter-Tribal Council of Arizona
The Navajo Tribe

4(B) For purposes of population estimates and projections other nonvoting members may be added to the Population Technical Advisory Committee by a majority vote of the members; and

4(C) A chairman shall be selected at the December annual meeting of the Population Technical Advisory Committee. The chairman shall be selected from the state agency members on an annual rotating basis; and

5. Upon review and advisory recommendation by the voting members of the Population Technical Advisory Committee. Population estimates and projections shall be transmitted to the Director of the Arizona Department of Economic Security for consideration. The population estimate and projections approved by the Director shall become the official State population estimates and projections and shall be used by all State agencies.

IN WITNESS WHEREOF, I have hereunto set my hand and caused to be affixed the
Great Seal of the State of Arizona

Rose Mofford

GOVERNOR

Done at the capitol in Phoenix on this first day of July in the Year of our Lord One Thousand Nine Hundred and Eighty-Eight and of the Independence of the United States of America the Two Hundred and Twelfth.

ATTEST: Jim Shumway
SECRETARY OF STATE

EXECUTIVE ORDER 95-2
(Supersedes Executive Order 88-10)

DESIGNATING THE DEPARTMENT OF ECONOMIC SECURITY AS THE STATE AGENCY
RESPONSIBLE FOR PREPARING OFFICIAL POPULATION ESTIMATES AND
PROJECTIONS FOR ARIZONA

WHEREAS, Arizona is concerned with the preparation of one set of official population estimates and projections for planning purposes required by Federal Law an annual updates for purposes other than the distribution of State funds, except where provided for by State law and reapportionment of the State Legislature and

WHEREAS, Arizona is concerned with the preparation of one set of official estimates and projections developed only once following each decennial or mid-decade census for planning purposes required by federal law which necessitate the unincorporated area of the county, The U.S. Bureau of the Census provides the most widely recognized level of specific detail for these sub-geographic areas for planning purposes required by federal law:

WHEREAS, the Arizona Department of Economic Security was designated by the Governor's Office in 1967 to represent the State of Arizona in a Federal-State Cooperative Program of Population Estimating with the US Bureau of the Census; and

WHEREAS, there is a desire to revise Executive Order 88-10 designating the Arizona Department of economic Security as the State agency responsible for official population estimates and projections for planning purposes required by federal law and for annual updates for other purposes specified by state law;

NOW THEREFORE, I, Fife Symington, Governor of the State of Arizona, do hereby designate the Arizona Department of Economic Security as the official population estimating and projecting agency for Arizona, with the following responsibilities:

1. The Department of Economic Security shall carry out the State's function of preparing official population estimates under the Federal State Cooperative Program for Population Estimating in cooperation with the U. S. Bureau of the Census; and
2. The Department of Economic Security shall prepare official population estimates and projections and annual population updates for the State and its counties and municipalities; and
3. (A).The Department of Economic Security shall annually prepare the official population estimates and projection for the State and its counties, cities, towns and unincorporated areas which have current populations of 1,000 or more, covering a fifty year period with single year projections for the current and immediately succeeding five years and for each decennial and mid-decade year thereafter. These estimates and projections shall be prepared only once following each decennial or mid-decade census if one is taken by the State or political subdivision thereof. For portions of the State in which a mid-decade census is not taken, the Department shall prepare the official population estimates and projections only once after the fifth year following the decennial census. The official estimates and projections prepared under this section shall be used for planning purposes required by federal law which necessitate the development of estimates or projections for sub-geographic areas of a city, town, or unincorporated area of the county. The U.S. bureau of the Census provides the most widely

recognized level of specific detail for these sub-geographic areas for planning purposes required by federal law. For the 1990 decennial census, the estimates adopted in 1992 and the projections adopted in 1993 by the Director of the Arizona Department of Economic Security shall serve as the official estimates and projections until after 1995 for planning purposes required by federal law; and

3 (B) The Department of Economic Security shall annually prepare population updates for other than planning purposes required by federal law in Section 3 (a) for the State and its counties, cities, towns and unincorporated areas which have current populations of 1,000 or more; and

3 (C) The Regional Councils of Governments may provide population projections for each decennial and mid-decade year, up to 50 (Fifty) succeeding years, to the Department of Economic Security for all cities, towns, and unincorporated area within the designated regional planning district in cooperating with the Department of Economic Security in Section 3 (A). Also, they may provide annual population updates for all cities, towns, and unincorporated areas in cooperation with the Department of economic Security in Section 3 (B). The official population estimates and projections provided by the Councils of Governments must be consistent with the Department of Economic Security's countywide projection figures and shall comply with standards established by the Department of Economic Security for developing population estimates and projections in Section 3 (a) and annual updates in Section 3 (B). For cities, town and unincorporated areas in Arizona: and

4 (A) The population estimates and projections made by the Arizona Department of Economic Security shall be subject to review and advisory recommendation by a Population Technical Advisory Committee prior to submission to the Director as provided is Section 5. Also, the standards established by the Department of economic Security for developing population estimates and projections shall be subject to review and advisory recommendation to the Director by the Population Technical Advisory Committee before implementation. The committee shall be comprised of one voting representative from each of the following agencies and institutions:

Department of Commerce
Department of Economic Security
Department of Education
Department of Health Services
Department of Revenue
Department of Transportation
Department of Water Resources
Arizona State University
Northern Arizona University
University of Arizona
Each Regional Council of Governments
County Supervisors Association of Arizona
League of Arizona Cities & Towns

Inter-Tribal Council of Arizona
The Navajo Tribe

4 (B) For purposes of population estimates and projections other non-voting members may be added to the Population Technical Advisory Committee by a majority vote of the members; and

4 (C) A Chairman shall be selected at the December annual meeting of the Population Technical Advisory Committee. The chairman shall be selected from the State agency members on an annual rotating basis; and

5. Upon review and advisory recommendation by the voting members of the Population Technical Advisory Committee, population estimates and projections shall be transmitted to the Director of the Arizona Department of Economic Security for consideration. The population estimates and projections approved by the Director shall become the official State population estimates and projections and shall become the official State population estimates and projections and shall be used by all State agencies. For planning purposes required by federal law, which necessitate the development of estimates or projections for sub geographic area of a city, town or unincorporated area of the county. The official estimates and projections developed in Section 3 (A) shall serve these purposes.

In WITNESS WHEREOF, I have hereunto set my hand and caused to be
affixed the GREAT SEAL of the State of Arizona.

Fife Symington

GOVERNOR

DONE at the capitol in Phoenix this tenth day of February in the Year of
Our Lord One Thousand Nine Hundred and Ninety-Five and of the
Independence of the United States of America the Two Hundred and
Nineteenth.

ATTEST:

Jane Dee Hull

SECRETARY OF STATE

**ADOPTED BYLAWS
POPULATION TECHNICAL ADVISORY COMMITTEE**

Article I

NAME

The name of the organization shall be the Population Technical Advisory Committee, a.k.a. POPTAC.

Article II

AUTHORITY

The Population Technical Advisory Committee shall be formed and operated under the authority of Executive Orders 88-10 and 95-2, signed by the Governor of the State of Arizona.

Article III

MEMBERSHIP

Membership shall include organizations specified in the Executive Order. Additional organizations may be accepted by the Committee as non-voting members. Each member organization shall provide the POPTAC chair with a written notification of that organization's principal representative and alternate(s).

Article IV

CHAIR

A chair shall be selected at the December annual meeting of the Population Technical Advisory Committee. The chair shall be selected from the state agency members on an annual rotating basis.

Article V

MEETINGS: PURPOSE, CALLING, NOTICE, AND CONDUCT

1. **Purpose:** The purpose for meetings shall include duties outlined in Executive Orders 88-10 and 95-2 to review and approve population estimates and projections and to conduct any items of business relating to the review and approval process.
2. **Calling:** Meetings of the POPTAC shall be held at the call of the chair. Any POPTAC member can request the chair to call a meeting.
3. **Notice:** Formal notification of POPTAC meetings shall be provided at least one week in advance of the meeting date, and in conformance with Arizona open meeting law requirements. Materials required for action items must be provided with the meeting notice. An emergency meeting may be called with 48

hours notice. All material will be distributed over the chair's signature.

4. **Conduct:** Meetings shall be governed by Robert Rules of Order.
A quorum shall consist of a simple majority of voting members.

Article VI

VOTING

Each member organization shall have one vote whether voting on an issue before the full committee or subcommittee. Either the principal representative or the alternate may vote. A proxy vote may be cast on behalf of the organization provided the chair is notified in writing of the person who will serve as proxy. In the absence of a quorum, a telephone vote shall be allowed in an emergency. A simple majority vote of the quorum shall be sufficient to approve estimates and projections and all other matters of business relating to POPTAC.

Article VII

SUBCOMMITTEES

- 1 The following shall be standing subcommittees:

- a **Executive Subcommittee**

Purpose: To meet as needed to formulate recommendations to POPTAC for its approval regarding POPTAC rules and procedures.

- b. **Methodology Subcommittee**

Purpose: To meet as needed to formulate recommendations to POPTAC and DES regarding the development of professional standards and methodology for population estimates and projections including data series, methods and assumptions. Geographic issues may also be considered by this committee.

2. Membership of each subcommittee shall consist of at least five (5) members, a majority of which shall constitute a quorum.
3. Terms of membership for subcommittee shall be one calendar year, with no limit to the number of terms.

Article VIII

BYLAWS AND AMMENDMENTS

Bylaws and amendments shall be adopted by a majority vote of the POPTAC.

Article IX

RATIFICATION

Readopted by motion passed at POPTAC meeting of April 12, 1991.

**STANDARDS
POPULATION TECHNICAL ADVISORY COMMITTEE**

RECOMMENDED ESTIMATING STANDARDS

The following standards represent professionally acceptable procedures for population estimates:

1. The term population “estimate” represents the total resident population (using the Census Bureau definition of resident) as of July 1 of the estimate year.
2. The most recent decennial or special census data shall be used to benchmark postcensal estimates for those methods for which benchmarking can be implemented for the state, counties, place, and other applicable census geographic areas. Changes in any decennial and/or special census will be used when the Census Bureau has made an official revision thereof in writing or by publication.
3. A state population control shall be independently calculated for each estimate year. The control shall be calculated by averaging together (unweighted or weighted arithmetic mean) two or more independent estimating methods in order to reduce the number of extreme errors and to balance out errors in different directions.
4. Estimating population requires the use of current data which are symptomatic of population changes. All data series used to produce estimates shall be reliable consistent timely, complete and significantly correlated to population change.
5. All county estimating methods shall develop household population estimates separately from group quarters population (GQP).
6. A weighted average of two or more independent estimating methods shall be used to produce the county population estimates in order to minimize biases, and shall be adjusted pro rata to the state control.
7. All estimating methods allude to in standards No. 3 and No. 6 shall be tested against the last census for determination of accuracy. The weight shall be determined from the accuracy test and the weights may vary by county. The weighting shall not exceed the following limits:

2 methods used	70% maximum	30% minimum
3 methods used	60% maximum	20% minimum
8. The same standard estimating techniques shall be used for all counties in order to be consistent and to maintain professional standards.
9. Incorporated place estimates shall be calculated using the Housing Unit Method. The number of housing units is estimated by an adjustment of the most recent decennial or special census housing stock base and post censal housing starts corrected for a construction time-lag, units not built, and seasonally occupied units. Other data series such as utility connections and housing completions, may be substituted for housing starts if the data can be similarly adjusted and provide geographic consistency.
10. A proportion of the incorporated county population shall be derived for each county base on the historical growth patterns, and adjusted for annexations. The

sum of the populations of the incorporated place estimates of each county shall not exceed the total for the incorporated proportion of the county population.

11. The estimates generated during the fall of the calendar year represent the current year estimates pursuant to the requirements of A.R.S. 41-1954. All current year estimates shall be considered provisional and subject to revision the following year.

APPENDIX

Standard 1. It is a standard procedure to use censuses as a base from which estimates are calculated. A benchmark represents a population count assumed to be the correct population as of a specific date. It is from the benchmark that census-comparable estimates are produced.

Standard 2. An example of averaging two methods is the Composite Method (CM) and the Housing Unit Method (HUM). The former method estimates changes in births, deaths, and migration; the latter estimates changes in the number of households. Average means the arithmetic mean of two or more estimating techniques.

Standard 3. Reliable means that the data have been analyzed for accuracy and consistency; timely represents the time lag between the data reference point and data availability. If current data are unavailable because of the time lag, the methodology for estimating these data must be objectively defensible and explained in detail. Complete means that the data are available at the minimum for the last two decennial censuses and annually thereafter during the postcensal period to the current estimate date. Examples of appropriate data include vital statistics, tax returns filed, Medicare enrollees, housing units, and school enrollment.

Standard 4, Group quarters are non-household living quarters such as institutions, ships, and college dormitories. They are classified as institution and non institution.

Standard 5, Examples of standard estimating methods include: Housing Unit Method, and, composite Method.

RECOMMENDED PROJECTING STANDARDS

The following standards represent professionally acceptable procedures for population projections:

1. The term population “projection” represents the total resident population (using the Census Bureau definition of resident) as of July 1 of the projection year.
2. A specific set of assumptions shall be developed within the framework of the projections model. The assumptions should capture the reality of the economic, demographic, and environmental aspects of the State of Arizona, and its counties. Assumptions should be included on mortality, fertility, and migration. Additional assumptions can also be incorporated.

3. State and county population projections shall be prepared using a well- linked interactive demographic/economic forecasting model for the projection period specified in the executive order.
4. Demographic time series used to produce state and county population projections shall be selected on the basis of reliability, timeliness, consistency, completeness, and significant correlation to population change. Intercensal population estimates from the Census Bureau, and postcensal population estimates based on the adopted estimating Standards shall be used to produce population projections.
5. Economic time series used to produce state and county population projections shall be selected on the basis of reliability, timeliness, consistency, completeness, and significant correlation to population change.
6. A state population control shall be calculated for each projection year, based on the projections from a state mode. Changes to county population projections shall be adjusted pro rata to the state population control.
7. Sub county population projections shall be prepared for all incorporated places, and for unincorporated areas of 1,000 or more, such as Census County Divisions, Census Designated Places or other unincorporated areas as appropriate.
8. Sub county projections for incorporated places shall be adjusted to a county population control for the incorporated portion of the county, based on historical activity and assumptions on relative growth.
9. The projected data series from the model should show correspondence in terms of trends for internal consistency and reconciliation.

APPENDIX

Standard 4 Examples of appropriate demographic time series include numbers or rates of births and deaths, fertility, mortality, and migration data series.

Standard 5 Examples of appropriate economic time series include BEA employment and personal income data, ES202 employment data, CES 790 employments data, and LMI published data.

Standard 9 Example of internal consistency include additivity of previous year population, births, deaths and migration to total population for the following year, additivity of age groups to total population, and additivity of employment of each industry sector to total employment.



**ARIZONA DEPARTMENT OF ADMINISTRATION
RISK MANAGEMENT SECTION**

1818 WEST ADAMS
PHOENIX, ARIZONA 85007
FAX 542-1982

July 15, 1994

Ms. Linda Strock
Populations Statistics Unit
Research Administration
Arizona Department of Economic Security
1717 W. Jefferson St.
Phoenix, AZ 85007

Subject: Population Technical Advisory Committee

Dear Ms. Strock:

The Department of Administration Risk Management Section has determined that the Population Technical Advisory Committee would be eligible for coverage by Risk Management pursuant to A.R.S. 41-621 for the following reasons:

1. The committee was created by Executive Order No 88-10 further defined by House Bill 2375 and made subject to legislative review and sunset legislation.
2. The committee exercises statewide powers.
3. The committee operates in an advisory capacity to the Department of Security which has the power to control the operations of the committee as well as the power to accept or reject the recommendations of the committee.

The criteria for determining whether a specific entity is a state agency, board, commission, or "such others as may be necessary to accomplish the functions or business of the state" (A.R.S. 41-621) are enumerated in Attorney General Opinion 190-009. 12/27/90. Coverage eligibility is determined by the Department of Administration applying these criteria.

A.R.S. 41-621 states that coverage for those entities determined eligible will be "...against liability for acts or omissions of any nature while acting within the course and scope of employment or authorization..." Further, "... such coverage shall be excess over any other valid and collectible insurance."

If you have further questions or need further clarification, please call.
Insurance Analyst Judith Olson or I would be happy to help.

Sincerely,

Les Marquis

ACTING RISK MANAGER

LM: jo

cc. Judith Olson

POPULATION TECHNICAL ADVISORY COMMITTEE (POPTAC) MEMBERSHIP

STATE VOTING MEMBERS

DEPARTMENT OF COMMERCE
DEPARTMENT OF ECONOMIC SECURITY
DEPARTMENT OF EDUCATION
DEPARTMENT OF HEALTH SERVICES
DEPARTMENT OF REVENUE
DEPARTMENT OF TRANSPORTATION
DEPARTMENT OF WATER RESOURCES
ARIZONA STATE UNIVERSITY
NORTHERN ARIZONA UNIVERSITY
UNIVERSITY OF ARIZONA

REGIONAL COUNCIL OF GOVERNMENT'S VOTING MEMBERS

MARICOPA ASSOCIATION OF GOVERNMENTS
PIMA ASSOCIATION OF GOVERNMENTS
NORTHERN ARIZONA COUNCIL OF GOVERNMENTS
WESTERN ARIZONA COUNCIL OF GOVERNMENTS
CENTRAL ARIZONA ASSOCIATION OF GOVERNMENTS
SOUTHEASTERN ARIZONA GOVERNMENTS ORGANIZATION
COUNTY SUPERVISORS ASSOCIATION OF ARIZONA
LEAGUE OF ARIZONA CITIES AND TOWNS
INTER-TRIBAL COUNCIL OF ARIZONA
THE NAVAJO TRIBE

NON-VOTING MEMBERS

CITY OF PHOENIX
YUMA METROPOLITAN PLANNING ORGANIZATION
MARICOPA COUNTY
LAND DEPARTMENT
DEPARTMENT OF INSURANCE
DEPARTMENT OF ENVIRONMENTAL QUALITY

ADDRESS LIST FOR COUNCILS OF GOVERNMENT

Director
Maricopa Association of Governments (MAG)
302 N 1st Ave. Suite 300
Phoenix, AZ 85003-1562
(602) 254-6300

Director
Pima Association of Governments (PAG)
177 North Church, Suite 405 Transamerica Bldg
Tucson, Arizona 85701-1187
(520) 792-1093

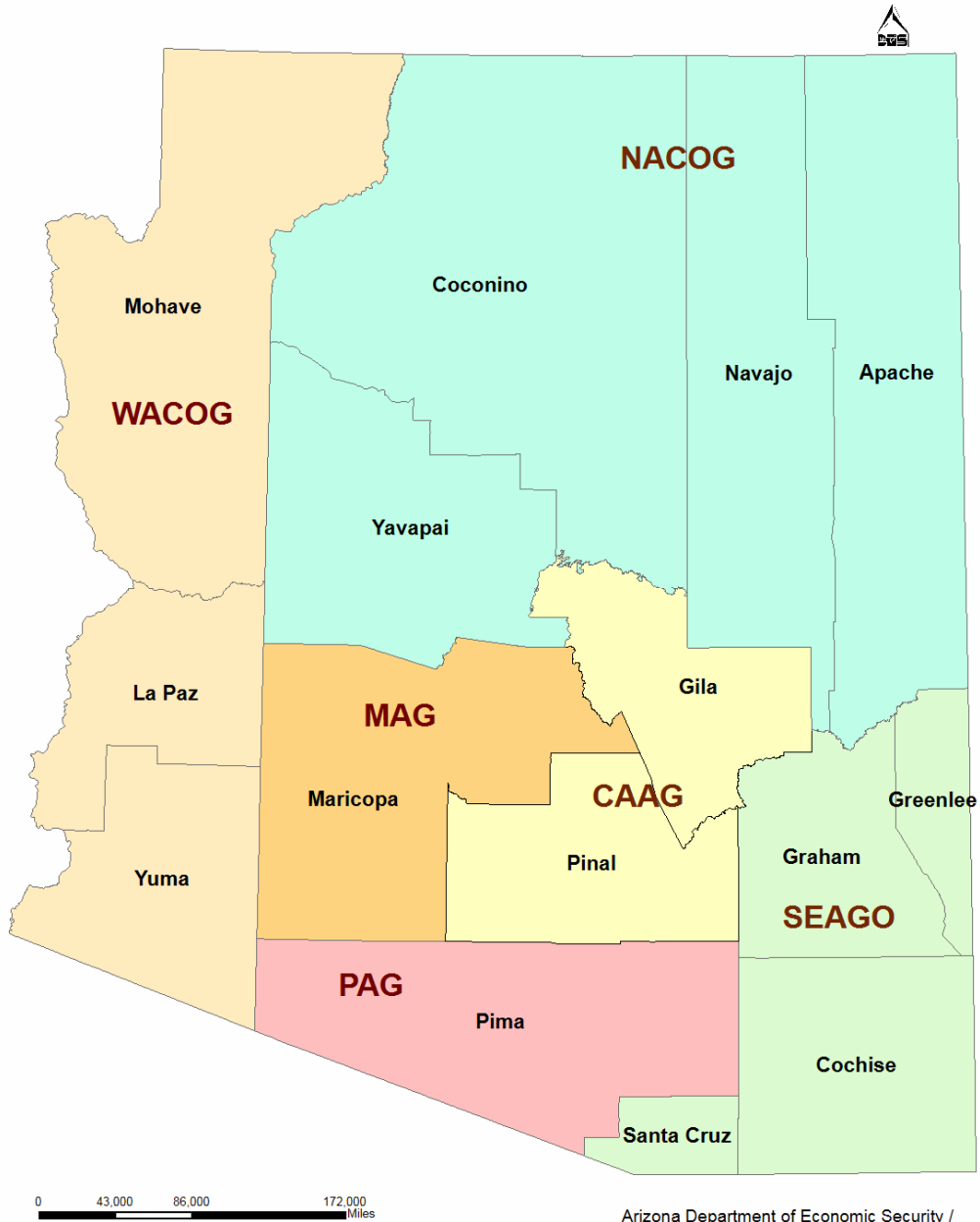
Director
Northern Arizona Council of Governments (NACOG)
119 E. Aspen Ave.
Flagstaff, Arizona 86001-5296
(928) 774-1895

Director
Western Arizona Council of Governments (WACOG)
224 S. 3rd Ave.
Yuma, Arizona 85364
(928) 782-1886

Director
South Eastern Arizona Governments Organization (SEAGO)
118 Arizona Street
Bisbee, Arizona 85603-1804
(520) 432-5301

Director
Central Arizona Association of Governments (CAAG)
271 Main Street
Superior, Arizona 85273
(520) 689-5004

ARIZONA COUNTY & COG MAP



Arizona Department of Economic Security /
Research Administration/ EA

OVERVIEW OF POPULATION ESTIMATION METHODS

A. Definition of Estimates and Projections

- 1 A **population estimate** is an indirect measure of the number of persons inhabiting an area for a current or past time period. Actual data sensitive to changes in population are used to derive the estimate.
- 2 A **population projection** is the numerical outcome of a set of assumptions (based on past trends or other sources) relating to future trends. The accuracy of the projections is conditional upon the assumptions being fulfilled

B. Purpose of Population Estimates

1. Estimates produce a census-comparable number.
2. Estimates are always for a date which has passed.
3. Estimates monitor Changes in the population.
4. Estimates are used as a base for population projections.

C. Types of Estimation Techniques

1. Census and Surveys
 - a. Decennial census
 - b. Mid-decade census
2. Extrapolative Techniques
 - a. Arithmetic
 - b. Geometric
 - c. Exponential
3. Censal Ratio Techniques
 - a. Housing Unit Method
 - b. Composite Method

D. Estimation Principles—The DES/POPTAC Standards reflect the following basic principles of estimation.

1. Estimates are more accurate for larger areas. Therefore, it is logical to adjust smaller areas to agree with larger areas.
2. Estimates of total population are more accurate than estimates of characteristics of the population such as age, race, sex, etc.
3. Direct data are more accurate than indirect data for use in preparing population estimates.
4. Estimates can be checked for accuracy by comparing an estimate with another estimate which uses different (whole or part) data or methods.
5. Mathematical methods (such as extrapolation) which require assumptions on population change are less accurate than methods which rely on data input for population.

6. Poor quality data results in less reliable estimates.

SUMMARY OF DES POPULATION ESTIMATE METHODS

DESCRIPTION OF CURRENT DES METHODS

1. **Model.** Conceptual description of the method in general, and each of the component methods for the household population. This write up should reference authoritative sources describing the method, its strengths and weaknesses. This will include presentation of the models to be used.
2. **Input Data.** Sources of the input data, with citations such that a reader could locate the data from a publicly accessible source. If the data are from special tabulations, then the tabulated data should be made available on the website. Discussion of the quality and timeliness of the input data, and procedures for synching the input data and estimates to July 1.
3. **Estimated Equations.** Provide details on the calculation of the ratios and the estimates equations with appropriate data for each county. Demonstrate how estimates are generated from the equations.
4. **Adjustments.** Changes to political boundaries require adjustment to the estimates base and input series. Document occurrence of boundary changes and adjustments that were made.
5. **Evaluation.** Report accuracy and precision of the method for estimating total population and each of the component censal ratios methods for age groups using the Census 2000 as the standard for comparison.

Housing Unit Method for Estimating Household Population

1. Model.

The Household Population is composed of all persons living in housing units, as distinct from persons living in group quarters. The household population for any geographic area can be defined in terms of the number of housing units that are occupied and the number of persons per household. This relationship can be presented as an accounting identity:

$$\text{HHPOP} = \text{HU} \times \text{OCCR} \times \text{PPH}$$

Where:

HHPOP – Persons living in households

HU – Number of housing units

OCCR – Proportion of total housing units that are occupied

PPH – Number of persons per household or average household size

For example the Census 2000 reported that Arizona's population in households was 5,020,782, the state's total number of housing units was 2,189,189 and that 1,901,327 of the housing units were occupied by persons for whom these housing units were their usual place of residence. Housing units may be occupied on a seasonal basis, yet counted by the Census as vacant because the housing units do not serve as a usual place of residence. The ratio of occupied units to total units is the occupancy rate, that is, the proportion of total housing that is occupied. The Census 2000 also reported that the average household size was 2.64 persons. Substituting these values into the formula above illustrates this accounting identity for Arizona.

$$\text{HHPOP} = 5,020,782$$

$$\text{HU} = 2,189,189$$

$$\text{OCCR} = (1,901,327 / 2,189,189) = 0.868507 = 86.9\%$$

$$\text{PPH} = (5,020,782 / 1,901,327) = 2.640673 = 2.64$$

$$\text{HHPOP} = \text{HU} \times \text{OCCR} \times \text{PPH}$$

$$5,020,782 = 2,189,189 \times 86.9\% \times 2.64$$

In order to estimate population of an area—be it the state, a county or municipal jurisdiction—what is needed are estimates of the number of housing units, the occupancy rate, and average household size. Ideally, current estimates of the three factors are used such that household population for a specific year may be estimated as follows:

$$\text{HHPOP}_{2005} = \text{HU}_{2005} \times \text{OCCR}_{2005} \times \text{PPH}_{2005}$$

In practice it is possible to estimate changes to the number of housing units by relying on administrative records such as certificates of occupancy, demolition permits and mobile home placements. However there is generally a lack of objective and reliable data on occupancy rates and average household sizes in the years following a decennial census. In some cases sample surveys have been produced that yield reasonable estimates, but in general these are only available for areas with very large populations. In the absence of updated estimates of occupancy rates and average household size, one procedure is to hold these constant at their value in the last census. In this case, the estimates formula for 2005 becomes:

$$\text{HHPOP}_{2005} = \text{HU}_{2005} \times \text{OCCR}_{2000} \times \text{PPH}_{2000}$$

2. Input Data:

Housing Units

The estimates of housing units are prepared annually and build on the previous year's estimate. The starting point for a decade is the counts provided in the decennial census. The decennial census count of housing units is broken down by four types: 1-unit in structure (e.g. - single family homes and townhouses); 2-4 units in structure (e.g. – duplexes); 5 or more units (apartment building), and mobile homes. Through the use of administrative records, municipal jurisdictions report to the Arizona Department of Economic Security changes in the housing stock by quarter. Additions to the housing stock by type are summarized from certificates of occupancy. Additions for mobile homes are based on mobile home permits. Subtractions from the housing stock are based on demolition permits. Changes in municipal boundaries require changes to the census base and the number of affected housing units is reported.

Occupancy Rates

The occupancy rate is the proportion of total housing units that are occupied, consistent with the Census Bureau's residency rules on "usual place of residence." The rates for all jurisdictions are derived from the Census 2000, Summary File 1, Table H3 - Occupancy Status. The table reports total, occupied and vacant housing units. The occupancy rate is calculated as follows:

Occupancy Rate = Occupied Units / Total Units

Data for the State of Arizona serve to illustrate:

Occupancy Rate = $(1,901,327 / 2,189,189) = 0.868507 = 86.9\%$

Persons Per Household Size

Persons per household, also referred to as average household size, is a statistical average calculated by dividing the number of persons living in households by the number of households (which is the same as occupied housing units). The Census Bureau reports persons per household for all jurisdictions in Census 2000, Summary File 1, Table P17 - Average Household Size. The data are derived by dividing values in Table P16 - Population in Households by Table P15 – Households.

Persons Per Household = $(5,020,782 / 1,901,327) = 2.640673 = 2.64$

3. Estimated Equations.

The equations used to estimate household population are calculated in the manner described above in Section 1 on the model. The following table presents a summary of the factors for the State of Arizona and the counties.*

*Not Available at this time

Composite Method for Estimating Household Population

1. Model.

As the name implies, the general form of the composite method is based on a combination of methods for estimating different age groups and the total household population is arrived at by summing the different age groups. Censal-ratio methods are used separately to estimate the following populations: under 5 years; 5 to 17 years; 18 to 64 years; and 65 years and older. Different data series are used with each age group: vital statistics for persons under 5 years; school enrollments for the 5 to 17 age group; drivers' licenses for persons aged 18 to 64; and Medicare enrollments for persons 65 years and older.

Under 5 years of age. Data on births and deaths for the cohort of persons aged 0 to 4 years at the time of the Census are used to estimate the number of persons in this age group. There is a lag in the availability of administrative data on births and deaths such that final data are 6 months behind the date for which estimates must be prepared. Therefore in order to establish a Censal Ratio that incorporates this lag, the vital statistics data are used to create a cohort aged 0 to 4 on October 1, 1999. This is the sum of the births between 10/1/1994 and 10/1/1999 minus the sum of deaths to persons born over that interval.

Vital Statistics Cohort Aged 0 to 4 on October 1, 1999
= Sum of Births – Sum of Deaths

Sum of Births =
1/4 of Births in 1994 +
All Births 1995 through 1998 +
3/4 of Births in 1999

Sum of Deaths =
1/4 of Deaths to infants (under 1 year of age) in 1994 +
All Deaths to infants 1995 through 1998 +
3/4 of Deaths to infants in 1999
+
1/4 of Deaths to persons aged 1 in 1995 +
All Deaths to persons aged 1 in 1996 through 1998 +
3/4 of Deaths to persons aged 1 in 1999
+
1/4 of Deaths to persons aged 2 in 1996 +
All Deaths to persons aged 2 in 1997 and 1998 +
3/4 of Deaths to persons aged 2 in 1999
+
1/4 of Deaths to persons aged 3 in 1997 +
All Deaths to persons aged 3 in 1998 +
3/4 of Deaths to persons aged 3 in 1999
+
1/4 of Deaths to persons aged 4 in 1998 +
3/4 of Deaths to persons aged 4 in 1999

These calculations yield an estimate, based on Vital Statistics, of the cohort of persons aged 0-4 that have survived from birth. The calculations described by the formulas above are graphically presented in Figure 1.

Figure 1. Calculation of Vital Statistics Cohort Aged 0 to 4 on October 1, 1999.

Age	1994	1995	1996	1997	1998	1999
Births						
Deaths to Age						
0						
1						
2						
3						
4						

The ratio of the vital statistics cohort to the census count can be used to estimate the size of this age group for subsequent years. The difference between the vital statistics cohort and the census count can be attributed to migration and errors in the component data and model.

Censal Ratio =
 Census count of household population aged 0 to 4 /
 Vital Statistics cohort aged 0 to 4

In order to estimate the household population of persons aged 0 to 4 at a subsequent date, for example July 1, 2005, complete the following calculations.

Births 2000 to 2004 =
 All Births 2000 - 2004

Deaths 2000 to 2004 =
 Deaths to infants 2000 - 2004
 +
 Deaths to persons aged 1 in 2001 - 2004
 +
 Deaths to persons aged 2 in 2002 - 2004
 +
 Deaths to persons aged 3 in 2003 - 2004

+

Deaths to persons aged 4 in 2004

Vital Statistics cohort aged 0 to 4, Jan 1, 2005 = Births – Deaths

Censal Ratio Estimate of Household Population Aged 0 to 4 on July 1, 2005 =
Vital Statistics cohort aged 0 to 4, Jan 1, 2005 * Censal Ratio

5 to 17 years of age. Data on school enrollment for grades K-12—reported for a point in time, October 1—are used as an indicator of change for persons aged 5 to 17 years. October 1 is widely used by states and the federal government as the standard date for reporting school enrollment. This means the school enrollment data refer to a date that is 9 months prior to the estimates date of July 1. The ratio of school enrollment to the Census count of persons in the household population aged 5 to 17 years therefore should ideally be calculated with this 9 month lag, which would be July 1, 1999 for the April 1, 2000 Census. However there are not consistent data on school enrollment available prior to October 1, 1999 and therefore the October 1, 1999 are used to calculate the ratio.

Censal Ratio = Census 2000 count of household population aged 5 to 17 /
School Enrollment on October 1, 1999.

In order to estimate the household population of persons aged 5 to 17 at a subsequent date, for example July 1, 2005, complete the calculations below. The estimate does not refer literally to July 1, 2005 when most students are on summer vacation; rather it is a mid-point in the calendar year.

Censal Ratio Estimate of Household Population Aged 5 to 17 on July 1, 2005 =
School Enrollment on October 1, 2004 * Censal Ratio.

18 to 64 years of age. Data on licensed drivers—reported for a point in time, July 1—are used as an indicator of change for persons aged 18 to 64 years. In order to establish the ratio of drivers' licenses to the Census count of persons in the household population aged 18 to 64 years, it is necessary to estimate the number of licensed drivers for April 1 of the Census year by interpolating.

Estimate of Licensed Drivers on April 1, 2000 =

$\frac{3}{4}$ of (Licensed Drivers on July 1, 2000 – Licensed Drivers on July 1, 1999) +
Licensed Drivers on July 1, 1999.

Censal Ratio = Census 2000 count of household population aged 18 to 64 /
Licensed Drivers on April 1, 2000

In order to estimate the household population of persons aged 18 to 64 at a subsequent date, for example July 1, 2005, complete the following calculations.

Censal Ratio Estimate of Household Population Aged 18 to 64 on July 1, 2005 =
Licensed Drivers on July 1, 2005 * Censal Ratio.

65 years and older. Data on Medicare enrollments for the aged are used as an indicator of change for persons in the household population aged 65 years and older. There is a lag in the availability of administrative data on Medicare enrollment such that the data are 12 months behind the date for which estimates must be prepared. Therefore in order to establish the ratio of Medicare enrollees to the Census 2000 count of persons in the household population aged 65 years and older that incorporates this lag, it is desirable to create an estimate of

Medicare enrollment for April 1, 1999. A consistent data series on Medicare enrollment are not available prior to 1999 and therefore the July 1, 1999 data on Medicare enrollment are used.

Censal Ratio = Census 2000 count of household population aged 65+ / Medicare Enrollees on July 1, 1999.

In order to estimate the household population of persons aged 65 years and older at a subsequent date, for example July 1, 2005, complete the following calculations.

Censal Ratio Estimate of Household Population Aged 65+ on July 1, 2005 = Medicare Enrollees on July 1, 2004 * Censal Ratio.

2. Input Data:

Under 5 years of age: Vital Statistics.

The data on births and deaths by single year of age are produced by the Arizona Department of Health Service. The Department of Health Services maintains a web site with vital statistics information at <http://www.azdhs.gov/plan/>. Data on live births by mother's county of residence are provided in Table 5B-3, and for deaths by resident county and age are provided in Tables 5E-15 and 5E-16. The data needed for these calculations require deaths by single year of age. The Department of Health Services provide these data to AZDES by a special tabulation.

The data are produced by calendar year and there is a lag between the end of the calendar year and the availability of these data in final form. Provisional data are available with only a 1-2 month lag, but the data are subject to revision before they become final and official. The lag of 6 months between the vital statistics and the date of the estimates is acceptable.

5 to 17 years of age: School Enrollments.

The data on school enrollments are produced by the Arizona Department of Education. The Department of Education maintains a public access web site, with the October 1st enrollment figures for current and prior years at, <http://www.ade.az.gov/researchpolicy/AZEnroll/>. The Research & Evaluation Section of the Department of Education collects and prepares these data. School districts report their head count of all active enrollments on October 1st of each school year.

Charter Schools. The potential problem is with coverage and whether students attending charter schools are included in the enrollment data. Charter schools, permitted by the Arizona School Improvement Act of 1994, serve as alternatives to traditional public schools. The data on enrollment include students enrolled in both traditional district and charter schools.

Open Enrollment. The potential problem is that students may be enrolling in schools not in their county of residence, and that there may have been substantial change in cross county enrollment since the Census 2000. Such a change could affect data quality with respect to coverage and consistency. "The Arizona School Improvement Act of 1994 (amended in 1995) mandates that public schools provide open enrollment opportunities throughout Arizona. The law was passed to allow parents/guardians to register their children in neighboring schools and school districts in an effort to give them a choice in school selection." (Source: http://www.prescott.k12.az.us/school_choice.htm)

In the Superintendent's Annual Report and the annual School Finance Reports prepared by the Arizona Department of Education there are breakdowns of students by resident and non-resident enrollment. These data are for average daily attendances which are not the same as the October 1 enrollment data. Rather it is the average daily membership for the first 100 days in session for students that attend school in the district. The data are broken down by students residing in the school district and those not residing in the school district. The classification of students as non-resident includes those residing in another school district in the same county as well as those residing in a school district outside the county. The report does not distinguish between these. The number reported for Attending Average Daily Membership is smaller than for October 1

Enrollment Counts because it is based on the average of actual daily attendance, not the total number of students enrolled in the schools.

Assessing Impact of Open Enrollment

Fiscal Year	Maricopa County			Pinal County		
	October Enrollment	Resident ADA	Non-Resident ADA	October Enrollment	Resident ADA	Non-Resident ADA
1999-2000	519,222	470,781	1,840	27,377	25,176	182
2000-2001	544,617	481,013	2,025	25,889	25,436	159
2001-2002	565,517	497,091	2,092	28,564	26,568	215
2002-2003	600,577	514,044	2,232	33,006	27,458	253
2003-2004	626,461	528,062	2,445	33,250	28,357	182
2004-2005	657,958	574,545	3,239	35,408	30,182	175

Source: Arizona Department of Education, Superintendent's Annual Report for 1999-2000 through 2003-2004; Financial Report for 2004-2005

In order to explore the potential impact of open enrollment we have created the table above. Jack Tomasik of the Central Arizona Association of Governments has stated that increasing numbers of students residing in Pinal County are open enrolling in schools located in Maricopa County, and so we have chosen to compare data for these two counties.

The columns we focus on are Non-Resident ADA for Maricopa County and October Enrollment for Pinal County. For Maricopa County, the level of average data attendance (ADA) among students living outside the school district in which they are enrolled increased from 1,840 in the 1999-2000 Fiscal Year to 3,239 in the 2004-2005 Fiscal Year. We used the October 1 enrollment for FY1999-2000 in combination with the Census 2000 to establish the censal ratio and the October 1 enrollment for FY2004-2005 to estimate the youth population for 2005. If the proportion of students open enrolling outside their county of residence (Pinal County) increased between FY1999-2000 and FY2004-2005 then the Censal Ratio would underestimate the youth population by a similar proportional difference.

The Non-Resident ADA includes students living in the county but in another school district as well as students living in other counties. If however the entire Non-Resident ADA in Maricopa County were accounted for by students residing in Pinal County then they would have represented 6.7 percent of Pinal County's October Enrollment in FY1999-2000 and increased to 9.1 percent of Pinal County's October Enrollment in FY2004-2005, then the enrollment figures would be 2.4 percent too low. That appears to be the most extreme case.

For Pinal County the Censal Ratio of Census count of household population aged 5 to 17 years to October Enrollment is the third highest in the state, behind Apache and Coconino Counties. The high ratio is consistent with a high proportion of students open enrolling outside the county, but if that is the case it appears that the Census Ratio is already taking account of much of that. The impact of Open Enrollment across county boundaries does have potential for affecting the estimates of youth population and should be examined in greater detail and monitored over time.

Duplicate Counts. The Department of Education states,

“Please note these counts are not unduplicated counts; concurrently enrolled students are counted as having an active membership in each school. Also, be aware there was a change in data collection in 2003. From 2003 forward, concurrent enrollments in technology schools are

included, which may additionally overstate aggregated enrollment figures.” (Source: <http://www.ade.az.gov/researchpolicy/AZEnroll/>)

To the extent that there are substantial difference between counties in the duplicate counting of students and that these differences have changed since the Census 2000 they could be a source of error in the estimates process. With the available data there is no way to evaluate this potential source of error.

18 to 64 years of age: Drivers’ Licenses.

The data on drivers’ licenses are produced by the Motor Vehicle Division of the Arizona Department of Transportation (AZ MVD). The Motor Vehicle Division maintains a web site with drivers’ license statistics at <http://www.azdot.gov/mvd/statistics/driverLicense.asp> and the report series used is MV-708. The count of drivers’ licenses used for these estimates is for a point-in-time, July 1 and is for all licenses (commercial and non-commercial) on file as of that date. There is a lag of 1 week between the reference and publication dates.

There are three data quality issues affecting the use of these data for estimating county population. First, between 2003 and 2004 there was a change in the programming logic used by AZ MVD resulting in a substantial difference between the prior and succeeding years. In the terminology of time series data analysis this was an abrupt and permanent difference and requires that an adjustment be made to the time series in order that the data are comparable for purposes of establishing census ratios and estimating population in subsequent years.

The Strategic Planning and Statistical Research Unit of the AZ MVD have stated the following:

Please be advised that this report (MV708) was reformatted In February 2004 to include a breakout of commercial vs. non-commercial licenses by county, among other changes. In addition, all counts were validated via programming checks and balances. In the process of this validation effort, it was discovered that previous years' reports contained counts that were questionable, due to differences in programming logic. For example, in January 2004, when the older report structure was still in place, some counts of identification cards and driver license categories were moderately to significantly higher than were presented in the reformatted and validated February 2004 report.

As a result of our findings at the time, we determined that it would be best to not publish the older reports since they could not be reliably compared with the newer reports. The FY 1999-2003 reports are certainly comparable, since they all utilize the same programming; likewise, the FY 2004 report is comparable with 2005. However, when looking at a breakout by counties, reports from earlier years do not distinguish between commercial and non-commercial licenses. Furthermore, it is not possible to recreate data for earlier years using the newer report format. This is because the data is strictly "point-in-time." License status codes applied to today's records cannot be reconstructed to reflect what was true of yesterday's records. Additionally, records purged today cannot be recreated to reflect yesterday's records, either. Such is an unfortunate limitation of our current mainframe system.

Second, the data for July 1, 2005 has an error in programming logic that resulted in an overstatement of the number of licensed drivers. In a message to AZDES on December 1, 2005 the Statistical Research Unit of the AZ MVD stated the following:

In February 2005, a programming change was made to the MVD database to identify counts of Active Military driver licenses, which impacted the MV708 report. This report provides point-in-time counts of driver credentials that are both

current and valid. Inadvertently, programming was set to include, rather than exclude, expired Active Military driver credentials. Subsequently, over counts occurred in most classes of driver credentials, but most especially in Class M: Motorcycle.

The error was not discovered until late October 2005, but reports issued in April, June, and October 2005 are all affected. This error has since been corrected. It is recommended that the MV708 report, dated 11/04/2005, be used to replace all April, June, and October 2005 reports.

Third, the annual series for counties, especially smaller counties showed considerable variability from year to year. We posed this question to staff in the MVD Statistical Research Unit and were told that counties do not follow a consistent schedule for updating their files and that can lead to a saw-tooth pattern in the data series.

In order to adjust the series to create comparable, consistent data by county for the years 1999 through 2005 we have done the following:

1. Estimate the corrected value for July 1, 2005 by linear interpolation between July 1, 2004 and November 4, 2005. The programming error led to an "over count" in drivers licenses and we did not allow our process to produce higher estimates than were originally reported for a county. The major changes were a reduction in drivers' licenses for Cochise, Maricopa, Pima and Yuma Counties.
2. Calculate and evaluate the data on "shares" of licensed drivers by county for the years 1999 through 2005. The data on shares were smoothed by taking a 3 year moving average. We do not have data prior to 1999 and so for the estimate of 1999, we used $(1999 + 1999 + 2000) / 3$. We do not have data after 2005 and so for the estimate of 2005, we used $(2004 + 2005 + 2005) / 3$.
3. Adjust the data on drivers' licenses for the State of Arizona, making estimates of the values for years 1999 through 2003 that are comparable with the data for 2004 and 2005. The annual rate of change for comparable years varied from a high of 4.1 percent for the period 1999-2000 to a low of 3.1 percent for the period 2004-2005. The average rate of change for the comparable years, 1999-2000, 2000-2001, 2001-2002, 2002-2003, and 2004-2005 was 3.5 percent and this value was used as an estimate of the rate of change for the period 2003-2004. The data were made comparable to 2004 and 2005 by using the rates of change (estimated for 2003-2004 and reported for earlier periods) to back down to 1999.
4. The estimates of drivers' licenses by county for 1999 through 2003 were then derived using the smoothed shares from step 2 above to allocate the adjusted state totals to the counties.

Graphs of the adjusted data on drivers licenses compared to the original reported data are appended to the end of this report.

65 years and older: Medicare Enrollments.

Data on Medicare Enrollments are produced by the Centers for Medicare & Medicaid Services (CMS) in the federal Department of Health and Human Services. The CMS maintains a web site with enrollment statistics at <http://www.cms.hhs.gov/statistics/enrollment/>. The relevant data series is for Aged persons (65+ years of age), the unduplicated count of persons enrolled in either or both Part A - Hospital Insurance (HI) and Part B - Supplemental Medical

Insurance (SMI) programs. The unduplicated count is equal to the sum of persons aged 65 years and older enrolled in Part A Only; Part A & Part B; and Part B Only.

The data are a point-in-time count as of July 1 of the reference year, and there is a substantial lag between the reference date and the availability of these data. In the absence of current data for the estimate, the most recent data on Medicare Enrollment are used. For the 2005 estimates a 12 month lag has been used.

3. Estimated Equations.

The Censal Ratios for each age group are calculated in the manner described above in Section 1 on the model. The following table presents a summary of the calculations for the State of Arizona.

Censal Ratio Estimates of Population Size	
	Arizona
<u>Ages 0-4</u>	
Censal Ratio =	1.015775
Census count of household population aged 0 to 4	381,833
/ Vital Statistics Cohort 10/1/1999	375,903
<u>Ages 5-17</u>	
Censal Ratio =	1.126236
Census count of household population aged 5 to 17	979,094
/ School Enrollment 7/1/1999.	869,351
<u>Ages 18-64</u>	
Censal Ratio =	0.928996
Census count of household population aged 18 to 64	3,014,134
/ Licensed Drivers 4/1/2000	3,244,508
<u>Ages 65 and Older</u>	
Censal Ratio =	1.119518
Census count of household population aged 65+	645,721
/ Medicare Enrollees 4/1/1999	576,785

The Censal Ratios vary by county. The following table presents the censal ratios for each age group for all counties.

Censal Ratios for Calculating Estimates of State and County Population

Censal Ratios For Calculating Estimates of Population Size				
	Age Group			
<u>State/County</u>	<u>0-4</u>	<u>5-17</u>	<u>18-64</u>	<u>65+</u>
Arizona	1.015775	1.126236	0.928996	1.119518
Apache	0.987889	1.317614	1.148089	1.061901
Cochise	0.951088	1.104378	0.742764	1.102149
Coconino	0.948464	1.213798	0.784802	0.752593
Gila	0.921755	1.028249	0.719779	1.026714
Graham	1.140105	1.178374	0.902118	1.064202
Greenlee	0.925490	1.019898	0.799646	0.901169
La Paz	1.122520	1.065312	0.769823	1.661317
Maricopa	1.031758	1.122714	0.977678	1.104683
Mohave	1.066279	1.117545	0.699282	1.119355
Navajo	0.987441	1.090940	0.949197	1.070980
Pima	0.983825	1.148954	0.911424	1.072030
Pinal	1.120842	1.194981	0.939526	1.392890
Santa Cruz	0.859762	0.992119	0.805405	0.978161
Yavapai	1.100561	1.087398	0.750642	1.161118
Yuma	0.878197	1.114948	0.965069	1.630740

Percent Never Built Calculation

The Arizona Housing Unit Method uses either building permits issued or building permit completions as one of the inputs. When using building permits issued as an input the assumption is that a small percent will never be finalized. Prior to the Census 2000, we assumed that percent to be 2% which was a national average used by Demographers in the early 90's. We at DES now have to use building permits issued as an input again, but instead of using the 2% national average, we decided to calculate an independent never built for each jurisdiction. The following steps were taken:

1. A difference between the 1990 Census and the 2000 Census was calculated and named Census Growth - (CG)
2. The number of building permits issued from 7/1/90 to 7/1/99 was calculated by using the 7/1/99 housing stock minus the 1990 census housing stock - (99HS)
3. Three quarter data of the 7/1/00 estimates was added to the 99HS to calculate the inventory as 4/1/00.
4. The DES housing inventory in 4/1/00 was yr-round as opposed to a total inventory. The yr-round inventory was calculated by applying a yr-round ratio (RATIO) to the total inventory. The ratio was calculated by dividing the number of vacant units that were not either for sale or rent by the total units. The resulting yr-round vacancy rate is looked at as a true representation of what is happening on the ground. In reality, there are no differences between the yr-round and the total inventory approach as both yield the same or near identical results - (4100YR)
5. The number of yr-round permits issued from 7/1/90 to 4/1/00 was calculated by subtracting from the 4100YR the 7/1/90 inventory - (YRPERT)
6. To convert back to total units, the following formula was used:

$$\text{YRPERT} * (1 + \text{RATIO}) = \text{Total Units}$$

7. The number of units never built was calculated by subtracting from the Total Units the CG - UNB
8. The percent never built was calculated by dividing UNB by Total Units - UNBTU
9. The actual percent never built was not used all the time. The following scale was used instead:

UNBTU < 0 = 0%, all the units were assumed completed

UNBTU Between 0% and 2% = Actual UNBTU

UNBTU > 2% = 2%, the two percent is a national average used by DES in the early 1990's

Group Quarters Population

The Group Quarters Population (people living in college dormitories, prison inmates, people living in nursing homes, etc.) is obtained by surveying the counties and local jurisdictions in May and June. The Group Quarters Population is then added to the Non-Group Quarters Population to obtain the total population.

DESCRIPTION OF CURRENT DES TECHNIQUES

State and County Estimates

State and County Estimates are developed using a weighted average of two independent estimating methods, the Housing Unit Method and the Composite Method. A range of 70%-30% is used as weights. Counties that need the biggest adjustments will be assigned 70 % HUM and 30% Composite Method.

Place estimates

Estimates for incorporated place are developed using the Housing Unit Method.

Place estimates are rounded to the nearest 5.

These figures are then controlled back to the Composite county figures.

Factors Affecting the Accuracy of Population Estimates

All estimation methods are affected by the assumptions on which they are based, by the databases employed, and by the methodological constraints that may affect the accuracy and reliability of results. While it is clear that population estimates are necessary for many purposes, it is often difficult to obtain accurate estimates of an area's population. Listed below are some characteristics that may affect the accuracy of population estimates:

Population Size – Smaller populations are more difficult to estimate accurately than larger populations.

Growth Patterns - Areas undergoing rapid change are typically more difficult to estimate accurately than are stable or static areas.

The database also affects the accuracy of population estimates:

Data Quality- Databases should be evaluated to make certain that the quality of the data is good. For example, a symptomatic indicator must be representative relative to the total population. In addition, a symptomatic indicator must show consistently over time.

Data Availability - Continuity of data through time is highly desirable and is often essential to the utilization or continuance of some methods.

Finally, it must be recognized that there is no assurance that any one estimation method will produce more accurate results than any other method for a given time and place. To reduce the likelihood of unreasonable estimates, it is generally desirable to employ several methods. Often, the best estimate is an average of several elements derived from different estimates.

POPTAC Guidelines for Local Surveys

Any local jurisdiction can submit survey results to POPTAC/DES to help explain the population of their community on the July 1st estimate date. The results can be used to modify one or more of the three components of the housing unit method as discussed below. However, a number of conditions must be met before such survey results will be accepted.

- 1.) An expert in survey research must be employed to design all aspects of the survey research methodology. (The actual surveying may be conducted by local residents who have received adequate training.) In particular, the questionnaire must be consistent with those used by the U.S. Census Bureau in conducting decennial and special censuses.
- 2.) The research methodology must be submitted to and accepted by an independent panel of experts approved by POPTAC/DES prior to the survey work being done.
- 3.) Any survey results dissonant with other available information, such as historical data for the same community and current data for other similar communities, must be adequately explained. Even if a procedurally sound survey methodology is employed, sampling error is inevitable. If that error appears to be large and unexplained, POPTAC/DES may choose not to accept the survey results.
- 4.) Survey results must be available to DES four weeks prior to distribution date for first draft of county estimates listed in POPTAC Calendar.

In small communities, a complete census may be less expensive than a survey. The research methodology still must be accepted by the independent panel of experts.

Housing Unit Method

Housing Unit Count. Surveying to establish the housing unit count is not recommended since current POPTAC/DES methods update this figure each year and because the survey design is difficult and expensive. However, a complete census of housing units may be feasible in small communities and avoids sampling problems.

Vacancy Rate. This component is the most likely candidate to be updated by survey results. The vacancy rate can vary considerably over just a few years, mostly due to the economic cycle, but POPTAC/DES does not adjust this figure except when new census results are released. Any survey or census must follow Census Bureau standards so that only housing units occupied by permanent residents are considered to be occupied.

Persons per Household. In most places, household size currently is not changing very much.

Thus, even though POPTAC/DES adjusts persons per household only when new census results become available, it may not be cost effective to do survey work to establish this figure. However, in some surveys designed to estimate the vacancy rate, there may be little additional cost to estimate household size. As in decennial and special census, only permanent residents should be counted.

HUM VARIABLES INFORMATION PROCESS

The DES Housing Unit Method (HUM) begins with a base year number of housing units from the 2000 Census, and adds post-censal housing starts from building permit data. The data are collected from a survey conducted by Arizona State University, and provided to DES. The building permits are “lagged” from the date the permit was issued for the time needed for construction based on the following time periods:

<u>Type of Unit</u>	<u>Lag Period (3-month quarters)</u>
• Mobile/manufactured homes	0 quarters
• Single, duplex, townhouse, and Structures with 3 or 4 units	2 quarters
• Structures with 5 or more units	4 quarters

The number of building permits is multiplied by .98 as it is assumed that 2 percent of the units permitted are never built.

The Housing Unit Method also adds housing units from annexations to the incorporated place which annexed an area, and deducts annexed housing units from the area in which the annexation originated, such as balance of county. Des conducts several mailings a year to receive local verification of the data for building permits and annexations. Next, the method subtracts residential demolitions and the result is the current year housing stock.

The number of occupied households is derived by applying an occupancy rate to the current year housing stock. Then, the number of occupied households is multiplied by the average number of persons per household to determine the estimated household population.

An example of the DES mailing schedule and examples of the various types of mailings sent out by DES are shown below. DES does not conduct housing surveys to obtain current information occupancy rates and persons per household. If appropriate survey data from other sources are available, it may be used to update these two variables. If no current data are available, the variables from the 2000 Census are used.

**COMPLETIONS, ANNEXATIONS, AND HUM INPUTS VARIABLES MAILING DEADLINE
PLUS DRAFT OF COUNTY, PLACE, AND GROUP QUARTERS MAILING DATES
7/1/06 POPULATION ESTIMATES**

	MAILING	DEADLINE	CITY MANAGERS GET REMINDER	COGS GET REMINDER
A. COMPLETIONS				
MAILING NO. 1	3/6/2006	3/24/2006	3/27/2006	4/5/2006
MAILING NO. 2	6/28/2006	7/10/2006	7/12/2006	7/20/2006
B. ANNEXATIONS				
MAILING NO. 1	4/6/2006	4/20/2006	4/24/2006	5/1/2006
MAILING NO. 2	6/28/2006	7/10/2006	7/12/2006	7/20/2006
C. GROUP QUARTERS				
COLLEGE (As of 5/1/06)	6/28/2006	7/10/2006	7/12/2006	7/20/2006
PRISON (As of 6/28/06)	6/28/2006	7/10/2006	7/12/2006	7/20/2006
NEW INSTITUTIONS (7/1/05 to 6/30/06)	6/28/2006	7/10/2006	7/12/2006	7/20/2006
D. HUM INPUTS VARIABLES	7/31/2006		FEEDBACK BY	8/18/2006
E. COMPOSITE ESTIMATES	8/7/2006		FEEDBACK BY	8/18/2006
F. FIRST DRAFT COUNTY ESTIMATES	8/25/2006			
G. FIRST DRAFT PLACE ESTIMATES	9/15/2006			

NOTE: ALL the jurisdictions including those in MAG and PAG need to provide DES with the data requested by the mailing deadline. Any missing data can be turned in no later than one week after the COG reminder date, data received after this date will not be used in the current year estimates, but will be added to the housing stock to be used in next year estimates. This rule will be enforced with no exceptions.

06 MAILING CALENDAR

F:\RESEARCH\POP\SAMUEL\LOTUS\2006ESTIMA

**BUILDING PERMITS AND DEMOLITIONS REQUEST
FOR THE 7/1/2006
ESTIMATES**

	5+	SINGLE	2 - 4	MOBILE	RESI- DENTIAL DEMO- LITIONS	YES	NO
QUARTER 3 OF 2004 (JULY, AUG, SEPT)							
QUARTER 4 OF 2004 (OCT, NOV, DEC)							
QUARTER 1 OF 2005 (JAN, FEB, MAR)							
QUARTER 2 OF 2005 (APR, MAY, JUN)							
QUARTER 3 OF 2005 (JULY, AUG, SEPT)							
QUARTER 4 OF 2005 (OCT, NOV, DEC)							
QUARTER 1 OF 2006 (JAN, FEB, MAR)							
QUARTER 2 OF 2006 (APR, MAY, JUN)							
CAN WE PUBLISH THE DATA IN OUR WEBSITE							

PRINT YOUR NAME: ----- DATE: -----

JURISDICTION: ----- E-MAIL: -----

PLEASE RETURN TO:

Jeff Hirshenson
Population Statistics Unit, Site Code 045Z
P.O. Box 6123
Phoenix, AZ 85005-6123
Tel: (602) 542-6058
Fax: (602) 542-7425
E-Mail: jhirshenson@azdes.gov

Thank you for your assistance.

DES reserves the right to audit any or all of the data which you provide

ANNEXATION REQUEST

April 1, 2006 To June 30, 2006

ANNEXATION NAME	ORDINANCE NUMBER	DATE ADOPTED	UNITS ANNEXED(if any)	HOW ANNEXED UNITS WERE ESTIMATED (if any)
--------------------	---------------------	-----------------	--------------------------	--

Reviewed by: -----
(PRINT YOUR NAME)

Date: -----

Jurisdiction: -----

E-Mail Address: -----

Please return to:

Jeff Hirshenson, DES
Population Statistics Unit, SC 045Z
P.O. Box 6123
Phoenix, AZ 85005-6123
Tel: (602) 542-6058
Fax: (602) 542-7425
E-Mail: jhirshenson@azdes.gov

DES reserves the right to audit any or all of the data which you provide

ANNEXED PEOPLE IN GROUP QUARTERS

APRIL 1, 2006 To JUNE 30, 2006

	NUM. OF			
	STUDENTS			
	MILITARY			
	PERSONNEL	NAME		
	OR	OF		
GROUP QUARTERS INSTITUTIONS	INMATES	CONTACT	ADDRESS	TELEPHONE
COLLEGE DORMITORIES				
MILITARY BARRACKS				
JAILS				
PRISONS				
NURSING HOMES				
OTHERS				

ME: -----

JURISDICTION: -----

DES reserves the right to audit any or all of the data which you provide

**COMPLETIONS AND DEMOLITIONS REQUEST
FOR THE 7/1/2006
ESTIMATES**

	SINGLE	2 - 4	5 ⁺	MOBILE	RESI- DENTIAL DEMO- LITIONS
QUARTER 1 OF 2006 (JAN, FEB, MAR)					
QUARTER 2 OF 2006 (APR, MAY, JUN)					

PRINT YOUR NAME: ----- DATE: -----

JURISDICTION: ----- E-MAIL: -----

PLEASE RETURN TO:

Jeff Hirshenson
Population Statistics Unit, Site Code 045Z
P.O. Box 6123
Phoenix, AZ 85005-6123
Tel: (602) 542-6058
Fax: (602) 542-7425
E-Mail: jhirshenson@azdes.gov

Thank you for your assistance.

PLEASE PRINT YOUR NAME AND INCLUDE THE NAME OF YOUR JURISDICTION

POPULATION PROJECTIONS

Population Projections Methodology

Introduction

Population projections for Arizona and its counties were prepared using the State of Arizona Demographic Cohort-Component Projections Model. This model used age and sex specific fertility, mortality and migration rates to age the population forward, one year at a time, for a period of fifty years.

Projections covering the 50 year period were produced using a mixed approach. For the period 2006 through 2030, a bottom-up approach was used. Specifically, counties were calculated individually and the results of the 15 counties projections were then summed to obtain the state population for 2030. Next, a trend extrapolation of the state population, using prior census data and current state projections produced by the Census Bureau, was used to determine a target population for the year 2055. The long-range (2055) target populations for the counties were then determined on a growth-share basis of the long-range projected state population.

Each cohort in this model consists of all persons of the same age and sex. The components being projected are represented in the standard demographic equation, which describes how a population changes over time:

$$P_{x+n} = P_x + (B_{x, x+n} - D_{x, x+n}) + (IM_{x, x+n} - OM_{x, x+n})$$

Where:

P_{x+n} = the size of the population at the end (x+n) of the time period

P_x = the size of the population at the beginning (x) of the time period

$B_{x, x+n}$ = the number of births during the time period

$D_{x, x+n}$ = the number of deaths during the time period

$(B_{x, x+n} - D_{x, x+n})$ = natural increase between time x and time x+n (the time period of interest)

$IM_{x, x+n}$ = the number of in-migrants during the time period

$OM_{x, x+n}$ = the number of out-migrants during the time period

$(IM_{x, x+n} - OM_{x, x+n})$ = net migration during the time period

n = the length of the time period, in this case was equal to one year.

Inputs to the Model

The population counts from the 2000 Census, by age and sex, for each county, were the starting point for the projections process. These data, together with vital statistics obtained from the Arizona Department of Health Services, were used to develop rates for fertility and mortality.

In- and out-migration counts by county, together with the interim U.S. population projections, both of which were obtained from the Census Bureau, were used to calculate migration rates. The population estimates from the Arizona Department of Economic Security were used as a control in determining the 2005 population distribution.

Fertility and survival rates were calculated by region, i.e., for each of the six Councils of Government, while migration rates were determined by county.

Fertility:

Age specific fertility rates (ASFRs) were determined using data on births by single year of age of the mother, by county of residence, provided by the Arizona Department of Health Services, for the period from 1999 through 2001. An average of these three data points, by age, together with the population counts from the 2000 census, were used with the following formula:

$$\text{ASFR} = \frac{\text{Births to women of a given age}}{\text{Number of women of a given age}}$$

Mortality:

Deaths by single year of age and sex, by county of residence, for the years 1999 through 2001, were also provided by the Arizona Department of Health Services. An average of these three data points for each age by sex, together with the population counts from the 2000 census, were used to calculate a complete life table by single year of age. Age and sex specific life table period survival rates, also known as 'fraction of life', were determined using the following formula:

$$S_{x, x+n} = \frac{L_{x+n}}{L_x}$$

Where:

$S_{x, x+n}$ = probability of a member of the cohort surviving from time x to time $x + n$

L_{x+n} = number of persons alive at the end of the period $x+n$

L_x = number of persons alive at the beginning of time period x

n = the length of the time period, in this case was equal to one year.

Migration:

The Census Bureau compiled its migration data, for the period 1995 to 2000, for persons five years of age or older, from question 15 of the Census 2000 long form. The question consists of two parts: Part A asks the respondent to indicate if they lived in the same house or apartment five years ago. If the answer is no, Part B asks for their previous address.

The in- and out-migration data from the 1990 census were made available by single year of age by sex. However, citing confidentiality issues, the Census Bureau has not made available Census 2000 data with the same level of detail.

In- and out-migration data for the projections were determined from a special-tabulation prepared for the Federal-State Cooperative Program for Population Estimates (FSCPE). The file contains data by 5-year age groups, for a total of 17 age groups by age by sex. The tabulation distinguishes between domestic and international in-migrants by county. Persons emigrating from the United States to other countries are not included as they were not resident in the U.S. at the time of the 2000 census. The international in-migrant counts were included in the computation of the migration rates without regard to the lack of any offsetting international out-migration data.

Since the Census Bureau's special tabulation of gross migration streams from the Census 2000 (STP-230) were reported in five year age groupings, the data were transformed into single year of age. To transform these data, we used an interpolation technique developed by Thomas Sprague over 100 years ago. The Sprague Multipliers utilize information on the distribution of population by age from the adjacent age groups in order to distribute the 5-year totals into single years. Discussion of this method may be found in G. Calot and J.-P. Sardon, "Methodology for the calculation of Eurostat's demographic indicators," European Commission, 2003; and Henry S. Shryock and Jacob S. Siegel, "Interpolation of Grouped Data," pp. 694-702, *The Methods and Materials of Demography*, U.S. Government Printing Office, 1973.

In the preparation of the migration rates, the number of migrants was compared to a base population. This base is the population considered to be 'at risk', i.e., the group of people who could potentially become migrants. It is preferable to use the population which existed at the beginning of the migration period, which in this case was 1995.

The population at risk of being counted in Census 2000 as in-migrants to the county for the period 1995-2000 is the U.S. population aged 5 years and older in 2000, minus persons residing in the county in 1995 and counted in Census 2000.

The base population at risk of being out-migrants for a county is the sum of persons reported in Census 2000 as having lived in the county in 1995 plus persons living outside the county who reported living in the county in 1995.

Age and sex specific in- and out-migration rates were prepared by dividing the number of migrants by their respective base populations and converting the results to annual rates. For ages less than 5 or greater than 85, the rate of the nearest computed rate was applied.

Projections Model

Control-to-Total:

Prior to calculating the population projections, a base population for 2005, consistent with the results of Census 2000 and the current population estimates, was determined. Fertility and mortality rates were assumed to remain constant during this period. Therefore, in order to determine a population distribution for the current estimates year, the migration rates were incrementally adjusted, using a plus-minus adjustment process, and the model rerun until the population calculated for 2005 matched the county's estimate for that year.

When necessary, fertility and mortality rates were incrementally adjusted so that the numbers of births and deaths occurring during the control period reflected

historical values. Specifically, the resulting numbers of births and deaths were compared to records on vital statistics from the last 10 years, as well as preliminary 2005 data. If the historical data was consistent and the near term projected values were outside the average deviation of the last 10 years, then minor adjustments were made to fertility and/or mortality rates. Births, then infant mortality, and finally mortality for all other ages were incrementally adjusted based on a target range determined by the average deviation of the known values.

Due to the difference between the growth rates of most Arizona counties in relation to the growth rate forecasted for the U.S. population projections (see Determination of Migration Compensatory Factors); adjustments for vital statistics were based on a modified version of the model. This modification consisted of applying a growth factor, based on the difference between the county and U.S. population, for each year between the census and the current estimates. In this way, any adjustments made to vital statistics were not based on a reduction in the number of in-migrants due to the growth rate differential between the county and the U.S..

Once any adjustments to fertility and survival rates were completed, the age- and sex-specific in- and out-migration rates were iteratively adjusted until the population of the county on April 1, 2000, aged forward, matched that county's 2005 estimate total. This population provided the starting point for the 2006-55 projections.

Determination of Migration Compensatory Factors:

In the Cohort-Component Population Projections model, the in-migration population is based on the U.S. population projections provided by the Census Bureau, while out-migration is based on the county population.

The rates of growth of most Arizona counties exceed the projected increases in the U.S. population. When the migration rates are applied without regard to this relationship, the growth in out-migration is proportionately higher than that for in-migration. This results in a continual drop in net migration over time. That is, the difference in the rates of growth between the U.S. population projections and the county projections creates a disproportionate relationship between in- and out-migration numbers over time, resulting in an unwarranted decline in the net migration numbers.

In order to compensate for the differential growth rates described above, compensatory factors were calculated for each county. Following the 2000-05 control-to-total, then the original (initial 1995-2000) migration rates were compared to the controlled (iteratively adjusted) 2005 rates. The differences between the original and controlled rates were used to calculate the average annual change that occurred. The magnitude of the average annual change required to produce the 2005 population distribution determined the size of the required migration compensatory factors, i.e., factors which would cancel out the effects of the U.S. vs. county growth rate differentials. Thus the size of the factor is directly proportional to the difference between the growth rates and is specific to each U.S.-county relationship. The faster a county is growing, the greater the adjustment required to compensate for the difference in growth rates.

For counties with growth rates higher than that of the U.S., an assumption is made that the relative differences in rates will diminish over time and gradually

come into line with those of the U.S.. Any compensatory adjustments¹ to the migration rates were, therefore, phased out over the 50-year period in direct proportion to the reduction in the U.S. growth rate. That is, a relatively larger decrease in the U.S. projected growth rate between any two years is reflected in a relatively larger reduction in the migration rate compensatory factor for that same time period. In this way, the year-to-year fluctuations present in the U.S. population projections series were reflected in the county level projections. However, due to its high rate of growth, a reduction of compensatory adjustment factors back to baseline (those which existed at the beginning of the projections period) was not performed for Pinal county. Likewise, due to its currently negative rate of growth, the compensatory rates for Greenlee county were not reduced over time.

Projections Calculations:

Beginning with the 2005 population distribution, projections were calculated by applying the age-specific fertility rates, and the age- and sex-specific survival, in-, and out-migration rates, year by year, to the end of the mandated 50-year projections period.

Survival rates which were found to be low at the start of the projections period, were gradually increased over the projections period. However, survival rates above the 1999-2001 baseline were not adjusted downward. In a similar fashion, fertility rates which needed to be adjusted upward were decreased back to the 1999-2001 level by the end of the 50 year projections time frame.

Long-term county projections, i.e., those beyond 2030, were determined based upon analyses of historical trends and projected state population levels. The population for the state for the year 2055 was projected using a trend extrapolation based on historical census data and current state level population projections provided by the Census Bureau. Maximum values for long-term county level projections were then established by applying each county's share of state growth during the projections period to the total population growth expected for Arizona between 2030 and 2055. When necessary, yearly population distributions, consistent with the long-range 2055 target populations, were iteratively determined. In other words, if the target population for a county for 2055 exceeded the expected maximum value, the model was used to iteratively determine yearly population demographics consistent with the expected long-term share of state growth.

It should be noted that the U.S. population projections, which serve as the basis for determining the number of immigrants, only extend to the year 2050. The Governor's Executive Order 95-2, however, requires population projections for a period of 50 years. Therefore, the average rates of growth from the 2040 to 2050 projections, by age and sex, were used to approximate projections, by single year of age by sex, for the years 2051 through 2055.

¹ Note that these are reductions to the compensatory factors only. They are not reductions in the initial 1995-2000 migration rates or the adjusted 2000-2005 control-to-total rates.

Last updated March 31, 2006

GLOSSARY OF ACRONYMS

ADOT	Arizona Department of Transportation
BDC	Business and Industry Data Center
BG	Block Group
BNA	Block Numbering Group
CAAG	Central Arizona Association of Governments
CCD	Census County Division
CDP	Census Designated Place
COG	Council of Governments
CMII	Component Method II\
CSA	County Supervisors Association
CT	Census Trace
DES	Department of Economic Security
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOC	Department of Commerce
DOC	Department of Corrections
DOE	Department of Education
DOI	Department of Insurance
DOR	Department of Revenue
DWR	Department of Water Resources
ED	Enumeration District
FSCP-E	Federal State Cooperative Program for Population Estimates
FSCP-W	Federal State Cooperative Program for Population Projections
GQP	Group Quarters Population
HUM	Housing Unit Method
MAG	Maricopa Association of Governments
MPO	Municipal Planning Organization
MSA	Metropolitan Statistical Area
NACOG	Northern Arizona Council of Governments
NGQP	Non-Group Quarters Population
PAG	Pima Association of Governments
POPTAC	Population Technical Advisory Committee
PPH	Persons per Household
SDC	State Data Center
SEAGO	South Eastern Arizona Governments Organization
SIC	Standard Industrial Classification
SMSA	Standard Metropolitan Statistical Area
TAZ	Traffic Analysis Zone
UA	Urbanized Area
VR	Vacancy Rate
VR	Vital Rates
VTD	Voting District
WACOG	Western Arizona Council of Governments

CENSUS DEFINITION

AREA CLASSIFICATIONS

American Indian Reservation and Trust Land

American Indian reservation – Federal American Indian reservations are areas with boundaries established by treaty, statute, and/or executive or court order, and recognized by the Federal Government as territory in which American Indian tribes have jurisdiction. State reservations are lands held in trust by State Governments for the use and benefit of a given tribe. The reservations and their boundaries were identified for the 1990 census by the Bureau of Indian Affairs (BIA) Department of Interior (for Federal reservations), and State governments (for State reservations).

Trust Land- Trust lands are property associated with a particular American Indian reservation or tribe, held in trust by the Federal Government. Trust lands may be held in trust either for a tribe (tribal trust land) or for an individual member of a tribe. Trust Lands recognized for the 1990 census comprise all tribal trust lands and inhabited individual trust lands located outside of a reservation boundary..

Area Measurement

Area measurements provide the size in square kilometers, recorded for each geographic entity for which the Census Bureau tabulates data in general-purpose data products (except Zip Codes and crews of vessels entities).

The Census Bureau provides measurements for both land area and total water area for the 1990 census; the water figure includes inland, coastal, Great Lakes, and territorial water.

Census blocks do not include water within their boundaries: therefore the water area of a block is always zero. ZIP Codes do not have specific boundaries, and therefore, also do not have area measurements.

The accuracy of any area measurement figure is limited by the inaccuracy inherent in (1) the location and shape of the various boundary features in the data base, and (2) rounding affecting the last digit in all operations that compute and/or sum the area measurements.

Block

Census blocks are small areas bounded on all sides by visible features such as streets, roads, streams, and railroad tracks, and by invisible boundaries such as city, town, township, and county limits, property lines, and short, imaginary extensions of streets and roads.

Tabulation blocks, used in census data products, are in most cases the same as collection blocks, used in the census enumeration. In some cases, collection blocks have been “split” into two or more parts required for data tabulations. Tabulation blocks do not cross the boundaries of counties, county subdivisions, places, census tracts or block numbering areas, American Indian and Alaska Native areas, congressional districts, voting districts, urban or rural area, or urbanized areas. The 1990 census is the first for which the entire United States and its possessions are block-numbered.

Blocks are numbered uniquely within each census tract or BNA. A block is identified by a three-digit number, sometimes with a single alphabetical suffix.

BLOCK GROUP (BG)

Geographic Block Group

A geographic block group (BG) is a cluster of blocks having the same first digit of their three-digit identifying numbers within a census tract or block numbering area (BNA). For example BG 3 within a census tract or BNA includes all blocks numbered between 301 and 397. BG's generally contain between 250 and 550 housing units with the ideal size being 400 housing units.

Tabulation Block Group

In the data tabulations, a geographic BG may be split to present data for every unique combination of county subdivision, place, American Indian and Alaska Native area, urbanized area, voting district, urban/rural and congressional district shown in the data product. For purposes of data presentation, BG's are a substitute for enumeration districts (ED'S) used for reporting data in pre-1990 censuses.

CENSUS TRACT AND BLOCK NUMBERING AREA

Block Numbering Area (BNA)

Block numbering areas (BNA's) are small statistical subdivisions of a county for grouping and numbering blocks in non-metropolitan counties where local census statistical area committees have not established census tracts.

Census Tracts

Census tracts are small, relatively permanent statistical subdivisions of a county. Census tracts are delineated for all metropolitan area (MA's) and other densely populated counties by local census statistical area committees following Census Bureau guidelines. Census tracts usually have between 2,500 and 8,000 persons and, when first delineated, are designed to be homogeneous with respect to population characteristics, economic status, and living conditions. Census tracts do not cross county boundaries. Census tracts are referred to as "tracts" in all 2000 data products.

BOUNDARY CHANGES

Boundary changes to legal entities result from:

1. Annexations to or detachments from legally established governmental units.
2. Mergers or consolidation of two or more governmental units.
3. Establishment of new governmental units.
4. Disincorporations or disorganizations of existing governmental units.
5. Changes in treaties and Executive Orders.

The historical counts shown for counties, county subdivisions, and places are not updated for such changes, and thus reflect the population and housing units in the area as delineated at each census.

CENSUS REGION AND CENSUS DIVISION

Census divisions are groupings of state that are subdivisions of the four census regions. There are nine divisions, which the Census Bureau adopted in 1910 for the presentation of data. Arizona is in the Mountain Division of the West Region.

Census regions are groupings of states that subdivide the United States for the presentation of data.

CONGRESSIONAL DISTRICT

Congressional Districts (CD's) are the 435 areas from which persons are elected to the U.S. House of Representatives.

COUNTY

The primary political divisions of the most States are termed "counties".

COUNTY SUBDIVISION

County subdivisions are primary subdivisions of counties for the reporting of decennial census data. They include census county divisions, census sub areas , minor civil divisions, and unorganized territories.

Census County Division

Census county divisions (CCD's) are subdivisions of a county that were delineated by the Census Bureau, in cooperation with State officials and local census statistical area committees, for statistical purposes. CCD's have no legal functions, and are not government units.

The boundaries of CCD's usually are delineated to follow visible features, and in most cases coincide with census tract or block numbering area boundaries. The name of each CCD is based on a place, county, or well-known local name that identifies its location.

GEOGRAPHIC CODE

Geographic codes are shown primarily on machine-readable data products, such as computer tape and compact disc/read-only memory (CD_ROM) but also appear on other products such as microfiche; they also are shown on some census maps.

Census Code

Census codes are assigned for a variety of geographic entities, including American Indian area, Census division, census region, county subdivision, place, state, urbanized area, and voting district.

METROPOLITAN AREA

The general concept of a metropolitan area (MA) is one of a large population nucleus, together with adjacent communities that have a high degree of economic and social integration with that nucleus. Some MA's are defined around two or more nuclei.

The MA classification is a statistical standard, developed for use by Federal agencies in the production. Analysis and publication of data on MA's. The MA's are designated and defined by the Federal Office of Management and Budget, following a set of official published standards. These standards were developed by the interagency Federal Executive Committee on Metropolitan Areas with the aim of producing definitions that are consistent as possible for all MA's nationwide.

Each MA must contain either a place with a minimum population of 50,000 or a Census Bureau-defined urbanized area and a total MA population of at least 100,000 (75,000 in New England). An MA comprises one or more central counties. An MA also may include one or more outlying counties that have close economic and social relationships with the central county. An outlying county must have a specified level of commuting to the central counties and must meet certain standards regarding metropolitan character, such as population density, urban population and population growth.

The territory, population, and housing units in MA's are referred to as "metropolitan". The metropolitan category is subdivided into "inside central city" and "outside central city". The territory, population, and housing units located outside MA's are referred to as "non-metropolitan". The metropolitan and non-metropolitan classification cuts across the other hierarchies: for example, there is generally both urban and rural territory within both metropolitan and non-metropolitan areas.

To meet the needs of various users, the standards provide a flexible structure of metropolitan definitions that classify an MA either as a metropolitan statistical area (MSA), or as a consolidated metropolitan statistical area (CMSA) that is divided into primary metropolitan statistical areas (PMSA's). Documentation of the MA standards and how they are applied is available from the Secretary, Federal Executive Committee on Metropolitan Areas, Population Division, U.S. Bureau of the Census, Washington, D.C. 20233.

Consolidated and Primary Statistical Area (CMSA and PMSA)

If an area that qualifies as an MA has more than one million persons, primary metropolitan statistical areas (PMSA's) may be defined within it. PMSA's consist of a large urbanized county or cluster of counties that demonstrates very strong internal economic and social links, in addition to close ties to other portions of the larger area. When PMSA's are established, the larger area of which they are component parts is designated a consolidated metropolitan statistical area (CMSA).

Metropolitan Statistical Area

Metropolitan statistical areas (MSA's) are relatively freestanding MA's and are not closely associated with other MA's. These areas typically are surrounded by non-metropolitan counties.

Central City

In each MSA and CMSA, the largest place and, in some case, additional places are designated as "central cities" under the official standards. A few PMSA's do not have central cities. The largest central city, and, in some cases, up to two additional central

cities are included in the title of the MA; there are also central cities that are not included in an MA title. An NA central city does not include any part of that city that extends outside the MA boundary.

Metropolitan Area Title

The title of an MSA contains the name of its largest central city, and up to two additional city names, provided that the additional places meet specified levels of population, employment, and commuting. Generally, a city with a population of 250,000 or more is in the title, regardless of other criteria.

The title of a PMSA may contain up to three place names, as determined above, or up to three county names, sequenced in order of population. A CMSA may also include up to three names, the first of which is generally the most populous central city in the area. The second name may be the first city or county name in the most populous remaining PMSA; the third name may be the first city or county name in the next most populous PMSA. A regional designation may be substituted for the second and/or third names in a CMSA title if such a designation is supported by local opinion and is deemed to be unambiguous and suitable by the Office of Management and Budget.

The title for all MA's also contains the name of each State in which the area is located.

PLACE

Places, for the reporting of decennial data, include census designated places and incorporated places.

Census Designated Place (CDP)

Census designated places (CDP's) are delineated for the decennial census as the statistical counterparts of incorporated places. CDP's comprise densely settled concentrations of population that are identifiable by name, but are not legally incorporated places. Their boundaries, which usually coincide with visible features or the boundary of an adjacent incorporated place, have no legal status, nor do they have officials elected to serve traditional municipal functions. CDP boundaries may change with changes in the settlement pattern; a CDP with the same name in the previous census does not necessarily have the same boundaries.

There are no minimum or maximum population thresholds for recognition as a CDP. This represents a substantial change from all prior CDP criteria. A CDP name may not duplicate the name of an adjacent or nearby incorporated place. Its boundaries may include state and county boundaries, all incorporated place boundaries, American Indian reservation boundaries and trust land.

Consolidated City

A consolidated government is a unit of local government for which the functions of an incorporated place and its county or minor civil division (MCD) have merged. The legal aspects of this action may result in both the primary incorporated place and the county or MCD continuing to exist as legal entities, even though the county or MCD performs few or no governmental functions and has few or no elected officials. Where this occurs and where one or more other incorporated places in the county or MCD continue to function as separate governments, even though they have been included in the consolidated government, the primary incorporated place is referred to as a "consolidated city".

Incorporated Place

Incorporated places recognized in 2000 census data products are those reported to the Census Bureau as legally in existence on January 1, 2000 under the laws of the State of Arizona as cities, and towns.

POPULATION OR HOUSING UNIT DENSITY

Population or housing unit density is computed by dividing the total population or housing units of a geographic unit (for example, United States, state county, place) by its land area measured in square kilometers or square miles. Density is expressed as both "persons (or housing units) per square kilometer" and as "persons (or housing units) per square mile" of land area in 2000 census printed reports".

URBAN AND RURAL

The Census Bureau defines "urban" for the 2000All territory, population and housing units in urbanized areas and in places of more than 2,500 persons outside of urbanized areas. "Urban" classification cuts across other hierarchies and can be in metropolitan or non-metropolitan areas. The maximum population for an urban area is 49,999.

1. Places of 2,500 or more persons incorporated as cities, villages and towns excluding rural portions of "extended cities"
2. Census designated places of 2,500 or more.
3. Other territory, incorporated or unincorporated, include in urbanized area.
4. **Urbanized Area.**
(UA) An area consisting of a central place(s) and adjacent territory with a general population density of at least 1,000 people per square mile of land area that together have a minimum residential population of at least 50,000 people. The Census Bureau uses published criteria to determine the qualification and boundaries of UAs
5. **Urbanized Area Central Place**
One or more central places function as the dominant centers of each UA. The identification of a UA central place permits the comparison of this dominant center with the remaining territory in the UA. There is no limit on the number of central places, and not all central places are necessarily included in the UA title. UA central places include:

1. Each place is entirely within the UA that is a central city of a metropolitan area (MA).
 2. If the UA does not contain an MA central city or located outside of an MA, the central place is determined by population size.
6. **Rural Area.**
Territory, population and housing units not classified as urban.

VOTING DISTRICT (VTD)

A voting district (VTD) is any variety of types of areas (for example, election districts, precincts, wards, legislative districts) established by State and local governments for purposes of elections.

ZIP CODE

Zip Codes are administrative units established by the United States Postal Service for the distribution of mail. Zip Codes serve addresses for the most efficient delivery of mail, and therefore generally do not respect political or census statistical area boundaries. Zip Codes usually do not have clearly identifiable boundaries, often serve a continually changing area, are changed periodically to meet postal requirements, and do not cover all the land area of the United States.

POPULATION CHARACTERISTICS

GROUP QUARTERS

All persons not living in households are classified by the Census Bureau as living in group quarters. Two general categories of persons in group quarters are recognized: (1) institutionalized persons and (2) other persons in group quarters (also referred to as “non-institutional group quarters”).

Institutionalized persons – Includes persons under formal authorized, supervised care or custody in institutions at the time of enumeration. Such persons are classified as “patients or inmates” of an institution regardless of the availability of nursing or medical care, the length of stay, or the number of persons in the institution. Generally, institutionalized persons are restricted to the institutional buildings and grounds (or must have passes or be escorted to leave) and thus have limited interaction with the surrounding community. Also, they are generally under the care of trained staff that has responsibility for their safe keeping and supervision.

Type of Institution- The type of institution was determined as part of census enumeration activities. For institutions which specialize in only one type of service, all patients or inmates were given the same classification. For institutions which had multiple types of major services (usually general hospitals and Veterans’ Administration hospitals), patients were classified according to selected types of wards. Each patient or inmate was classified in only one type of institution. Institutions include the following types:

Correctional Institutions – This includes prisons, federal detention centers, military stockades and jails, police lockups, halfway houses, local jails, and other confinement facilities, including work.

Nursing Homes- Comprises a heterogeneous group of places. The majority of patients are elderly, although persons who require nursing care because of chronic physical conditions may be found in these homes regardless of age.

Mental (Psychiatric) Hospitals – Includes hospitals or wards for the criminally insane not operated by a prison and psychiatric wards of general hospitals and veterans’ hospitals.

Juvenile Institutions – Includes home, schools, and other institutions providing care for children (short- or long-term care).

Other Persons in Group Quarters (also referred to as “non-institutional group quarters”)-

This includes all persons who live in group quarters other than institutions. Persons who live in the following living quarters are classified as “other person in group quarters” when there are 10 or more unrelated persons living in the unit: otherwise, these living quarters are classified as housing units.

Rooming Houses – This included persons residing in rooming and boarding houses and living in quarters with 10 or more unrelated persons.

Group Homes – This include “community based homes” that provide care and supportive services, such as homes for the mentally ill, homes for the mentally retarded, homes for the physically handicapped, homes or halfway houses for drug/alcohol abuse, maternity homes for unwed mothers and other group homes.

Religious Group Quarters- This include, primarily, group quarters for nuns teaching in parochial schools and priests living in rectories. It also includes other convents and monasteries, except those associated with a general hospital or an institution.

College Quarters Off Campus – This includes privately-owned rooming and boarding houses off campus, if the place is reserved exclusively for the occupancy by college students and if there are 10 or more unrelated persons. In census products, persons in this category are classified as living in college dormitories.

Persons residing in certain other types of living arrangements are classified as living in “non-institutional group quarters” regardless of the number of people sharing the unit. These include persons residing in the following types of group quarters: College Dormitories, Military Quarters, Agriculture Workers’ Dormitories, Other Workers’ Dormitories and Emergency Shelters for Homeless Persons (with sleeping facilities) and Visible in Street Locations. This last category is divided into four classifications:

Emergency Shelters for Homeless Persons (with sleeping facilities) – This includes Salvation Army shelters, hotels/motels and flophouses charging \$12 or less (excluding taxes) per night: Salvation Army shelters,, hotels, and motels used entirely for homeless persons regardless of the nightly rate charged: rooms I hotels and motels used partially for the homeless: and similar places known to have persons who have no usual home elsewhere staying overnight. If not shown separately, shelters and group homes which provide temporary sleeping facilities for runaway, neglected, and homeless children are included in this category of data products.

Shelters for Runaway, Neglected, and Homeless Children - This includes shelters/group homes which provide temporary sleeping facilities for juveniles.

Visible in Street Locations- This includes street blocks and open public locations designated before census day by city and community officials as places where the homeless congregate at night.

Pre-designated street sites include street corners, parks, bridges, persons emerging from abandoned and boarded up buildings, non-commercial campsites (tent cities), all-night movie theaters, all-night restaurants, emergency hospital waiting rooms, train stations, airports, bus depots, and subway stations.

Shelters for Abused Women (Shelters Against Domestic Violence or Family Crisis Centers)

This includes community-based homes or shelters that provide domiciliary care for women who have sought shelter from family violence and who have been physically abused. Most shelters also provide care for children of abused women. These shelters may provide social services, meals, psychiatric treatment, and counseling. In some census products, “shelters for abused women” are included in the category “other non-institutional group quarters.”

Dormitories for Nurses and Interns in General and Military Hospitals, Crews of Maritime Vessels, Staff Residents of Institutions, Other Non-household Living Situation and Living Quarters for Victims of Natural Disaster are additional examples of Other Persons in Group Quarters.

Limitations of the Data – Two types of errors can occur in the classification of “types of group quarters”:

1. Misclassification of Group Quarters
2. No Classification (unknowns)

HISPANIC ORIGIN

The data on Spanish/Hispanic origin were derived from answers to questionnaire item 7, which was asked of all persons. Persons of Hispanic origin are those who classified themselves in one of the specific Hispanic origin categories listed in the questionnaire – “Mexican”, “Puerto Rican”, “Cuban” - as well as those who indicated they were of “other Spanish/Hispanic” origin. Persons of “Other Spanish/Hispanic” origin are those whose origins are from Spain, the Spanish speaking countries of Central or South America, or the Dominican Republic, or they are persons of Hispanic origin identifying themselves generally as Spanish, Spanish-American, Hispanic, Hispano, Latino, etc.. Write-in responses to the “other Spanish/Hispanic” category were coded only for sample data.

Origin can be viewed as the ancestry, nationality group, lineage, or country of birth of the person or person’s parents or ancestors before their arrival in the United States. Persons of Hispanic origin may be of any race.

HOUSEHOLD TYPE AND RELATIONSHIP

Household

A household includes all the persons who occupy a housing unit. A housing unit is a house, an apartment, a mobile home, a group of rooms, or a single room that is occupied (or if vacant, is intended for occupancy) as separate living quarters. Separate living quarters are those in which occupants live and eat separately from any other person in the building and which have direct access from the outside of the building or through a common hall. The occupants may be a single family, one person living alone, two or more families living together, or any group of related or unrelated persons who share living arrangements.

In 100 - percent tabulations, the count of households or householders always equals the count of occupied housing units. In sample tabulations, the numbers may differ as a result of the weighting process.

Person Per Household – A measure obtained by dividing the number of persons in households by the number of households (or householders). In cases where persons are cross-classified by race or Hispanic origin, persons in the household are by the race or Hispanic origin of the householder rather than the race or Hispanic origin of each individual.

Relationship to Householder

Householder – The data in relationship to householder were derived from answers to questionnaire item 2, which was asked of all persons in housing units. One person in each household is designated as the householder. In most cases, this is the person or one of several persons in whose name the house is owned, being bought or rented and who is listed in column 1 of the census questionnaire. If there is no such person in the household, any adult member 15 years old and over could be designated as the householder.

Households are classified by type according to the sex of the householder and the presence of relatives. Two types of householders are distinguished: a family householder and a non-family householder. A family householder is a householder living with one or more persons related to him or her by birth, marriage, or adoption.

The householder and all persons in the household related to him or her are family members. A non-family householder is a householder living alone or with non-relatives only.

Spouse - Includes a person married to and living with a householder. This category includes persons in formal marriages, as well as persons in common-law marriages.

The number of spouses is equal to the number of “married-couple families” or “married couple households” in 100 – percent tabulations. The number of spouses however is generally less than half the number of “married persons with spouse present” in sample tabulations, since more than one married couple can live in a household, but only spouses of householders are specially identified as “spouse.” For simple tabulations, the number of “married persons with spouse present” includes married – couple subfamilies and married-couple families.

Child – Includes a son or daughter by birth, a stepchild, or adopted child or the householder, regardless of the child’s age or marital status. The category excludes sons-in-law, daughters-in-law, and foster children.

“Related children” in a family include own children and all other persons under 18 years of age in the household, regardless of marital status, who are related to the householder, except the spouse of the householder. Foster children are not included since they are not related to the householder.

Other Relatives – In tabulations, includes any household member related to the householder by birth, marriage, or adoption, but included specially in another relationship category. In certain detailed tabulations, the following categories may be shown: Grandchild, Brother/Sister, Parent, and Other Relatives.

Non-relatives – Includes any household member, including foster children not related to the householder by birth, marriage, or adoption. Roomer, Boarder, or Foster Child, Housemate or Roommate, Unmarried Partner, and Other Non-Relatives may be presented in more detailed tabulations.

When a relationship is not reported for an individual, it is inputted according to the responses for age, sex, and marital status for that person while maintaining consistency with responses for other individuals in the household.

Unrelated Individual

An unrelated individual is: (1) a householder living alone or with non-relative only, (2) a household member who is not related to the householder, or (3) a person living in group quarters who is not an inmate of an institution.

Family Type

A family consists of a householder and one or more other persons living in the same household who are related to the householder and are regarded as members of his or her family. A household can contain only one family for purposes of census tabulations. Not all households contain families since a household may comprise a group of unrelated persons or one person living alone.

Families are classified by type as either a “married-couple family” or “other family” according to the sex of the householder and the presence of relatives. The data on family type are based on answers to questions on sex and relationship which

were asked on a 100 – percent basis. The “Other Family” categories are “Male Householder, No Wife Present” and “Female Householder, No Husband Present”.

Person Per Family - This is a measure obtained by dividing the number of persons in families by the total number of families (or family householders). In cases where the measure

“persons in family” or “persons per family” are cross tabulated by race or Hispanic origin, the race or Hispanic origin refers to the householder rather than the race or Hispanic origin of each individual.

Subfamily

A married couple (with or without children) or a single parent with one or more never-married children under the age of 18, residing with and related to the householder, but not including the householder or the householder's spouse.

When grown children move back to the parental home with their own children or spouse, they are considered a subfamily.

Unmarried-Partner Household

Household in which the householder and his or her partner are not legally married or participating in a common law marriage.

Foster children

Children receiving parental care and guidance although not related through blood or legal ties; placed in care by a government agency.

When a foster child is also a relative, such as a nephew or niece, the child is counted as a related individual rather than a foster child.

Stepfamily

A stepfamily is a “married-couple family” with at least one stepchild of the householder present, where the householder is the husband.

MARITAL STATUS

The data on marital status were derived from answers to questionnaire item 6, which was asked of all persons. The marital status classification refers to the status at the time of enumeration. Data on marital status are tabulated only for persons 15 years old and over.

All persons were asked whether they were “now married”, “widowed”, “divorced”, “separated”, or “never married”. Couples who live together (unmarried persons, persons in common-law marriages) were allowed to report the marital status they considered most appropriate.

Never Married – This includes all persons who have never been married, including persons whose only marriage(s) was/were annulled.

Ever Married - This includes persons married at the time of enumeration (included those separated), widowed or divorced.

Now Married, Except Separated – This include persons whose current marriage has not ended through widowhood divorce, or separation (regardless of previous marital history). The category may also include couples who live together or persons in common-law marriages if they consider the category the most appropriate. In certain tabulations, currently married persons are further categorized as “spouse present” or “spouse absent.”

Separated – This includes persons legally separated or otherwise absent from their spouse because of marital discord. Included are persons who have been deserted or who have parted because they no longer want to live together but who have not obtained a divorce.

Widowed – This includes widows and widowers who have not remarried.

Divorced – This includes person who are legally divorced and who have not remarried.

Now Married – This includes all persons whose current marriages have not ended by widowhood or divorce. This category includes persons defined above as “separated”.

Difference between the number of currently married and the number of currently married females occur because of reporting differences and because some husbands and wives have their usual residence in different areas.

RACE

Race is a self-identification data item in which respondents choose the race or races with which they most closely identify. It does not denote any clear-cut scientific definition of biological stock. It is recognized that the categories of the race item include either racial and national origin or sociocultural groups.

White- This includes persons who indicated their race as “White” or reported entries such as Canadian, German, Italian, Lebanese, Near Easterner, Arab, or Polish.

Black- This includes persons who indicated their race as “Black or Negro” or reported entries such as African American, Afro-American, Black Puerto Rican, Jamaican, Nigerian, West Indian, or Haitian.

American Indian, Eskimo, or Aleut- This include persons who classified themselves as such one of the specific race categories identified below.

American Indian - This include persons who indicated their race as “American Indian”, entered the name of an Indian tribe, or reported such entries as Canadian Indian, French-American or Spanish-American Indian.

American Indian Tribe- Persons who identified themselves as American Indian were asked to report their enrolled or principal tribe.

The information on tribe is based on self-identification and therefore does not reflect any designation of Federal- or State-recognized tribe. Information on American Indian tribes is presented in summary tape files and special data products. The classification list represents all tribes, bands, and clans that have a specified number of American Indians reported on the census questionnaire.

Eskimo –This includes persons who indicated their race as “Eskimo” or reported entries such as Arctic Slope, Inupiat, and Yupik

Aleut – This includes persons who indicate their race as “Aleut” or reported entries such as Alvtiiq, Egegik, and Pribilovian.

Asian or Pacific Islander – This includes persons who reported in one of the Asian or Pacific Islander groups listed on the questionnaire or who provided write in responses such as Thai, Napali, or Tongan. A more detailed listing of groups comprising the Asian or Pacific Islander population is presented below.

Asian – This includes “Chinese,” “Filipino,” “Japanese,” “Asian Indian,” “Korean,” “Vietnamese,” and “Other Asian.”

Chinese - This includes persons who indicated their race as “Chinese” or who identified themselves as Cantonese, Tibetan or Chinese American. In standard reports, persons who reported as “Taiwanese” or “Formosan” are included here with Chinese.

Filipino- This includes persons who indicated their race as “Filipino” or reported such entries as Philipino, Philippine, or Filipino- American.

Japanese- This includes persons who indicated their race as “Japanese” and persons who identified themselves as Nipponese or Japanese American.

Asian Indian - This includes persons who indicated their race as “Asian Indian” and persons who identified themselves as Bengalese, Bharat, Dravidian, East Indian or Goanese.

Korean - This includes persons who indicated their race as “Korean” and persons who identified themselves as Korean-American.

Vietnamese – This includes persons who indicated their race as “Vietnamese” and persons who identified themselves as Vietnamese American.

Cambodian – This includes persons who provided a write-in response such as Cambodian or Cambodia.

Hmong - This includes persons who provided a write-in response such as Hmong, Laohmong, or Mong.

Laotian – This includes persons who provided a write-in response such as Laotian, Laos, or Lao.

Thai - This includes persons who provided a write-in response such a Thai, Thailand, or Siamese.

Other Asian – This include persons who provided a write-in response such as Bangladeshi, Burmese, Indonesian, Pakistan, Sri Lankan, Amerasian or Eurasian.

Pacific Islander- This includes persons who indicated their race as “Pacific Islander” by classifying themselves into one of the following race categories (Hawaiian, Samoa, or Guamanian) or identifying themselves as one of the Pacific Islander cultural groups of Polynesian, Micronesian or Melanesian.

Other Race - This include all other persons not included in the White, Black, American Indian, Eskimo, or Aleut and the Asian or Pacific Islander race categories described above. Persons reporting in the Other Race category and providing write-in entries such a multiracial, multiethnic, mixed, interracial, Wesort, or as Spanish/Hispanic origin group are included here.

SEX

Sex-Ratio - This is a measure derived by dividing the total number of males by the total number of females and multiplying by 100.

HOUSING CHARACTERISTICS

LIVING QUARTERS

Living quarters are classified as either housing units or group quarters. (For more information, see discussion of “Group Quarters” under Population Characteristics.) Usually, living quarter are in structures intended for residential use (for example, a one-family home, apartment house, hotel or motel, boarding housing, or mobile home). Living quarters also may be in structures intended for non-residential use (for example, the rooms in a warehouse where a guard lives),

as well as in places such as tents, vans, shelters for the homeless, dormitories, barracks, and old railroad cars.

Housing Units- A housing unit is a house, an apartment, a mobile home or trailer, a group of rooms or a single room occupied as separate living quarters or, if vacant, intended for occupancy as separate living quarters. Separate living quarters are those in which the occupants live and eat separately from any other persons in the building and which has direct access from outside the building or through a common hall.

The occupants may be a single family, one person living alone, two or more families living together, or any other group of related or unrelated persons who share living arrangements. For vacant units, the criteria of separateness and direct access are applied to the intended occupants whenever possible. If that information cannot be obtained, the criteria are applied to the previous occupation.

Both occupied and vacant housing units are included in the housing unit inventory, except that recreational vehicles, boats, caves, tents, railroad cars and the like are included only if they are occupied as someone's usual place of residence. Vacant mobile homes are included, provided they are intended for occupancy on the site where they stand. Vacant mobile homes on dealers' sales lots, at the factory, or in storage yards are excluded from the housing inventory,

If the living quarters contain 9 or more persons unrelated to the householder or person in charge (a total of 10 unrelated persons), they are classified as group quarters. If the living quarters contain eight or fewer persons unrelated to the householder or person in charge, they are classified as housing units.

Occupied Housing Units – A housing unit is classified as occupied if it is the usual place of residence of the person or group of persons living in it at the time of enumeration, or if the persons staying in the unit at the time of the census have their usual place of residence elsewhere, the unit is classified as vacant. A household includes all the persons who occupy a housing unit as their usual place of residence. By definition, the count of occupied housing units for 100-percent tabulations is the same as the count of households or householders.

Vacant Housing Units - A housing unit is vacant if no one is living in it at the time of enumeration, unless its occupants are only temporarily absent. Units temporarily occupied at the time of enumeration, entirely by persons who have a usual residence elsewhere are also classified as vacant. (For more information, see discussion under "Usual Home Elsewhere.")

New units not yet occupied are classified as vacant housing units if construction has reached a point where all exterior windows and doors are installed and final usable floors are in place. Vacant units are excluded if they are open to the elements; that is, the roof, walls, window, and/or doors no longer protect the interior from the elements, or if there is positive evidence (such as a sign on the house or in the block) that the unit is condemned or is to be demolished. Also exclude are quarters being used entirely for non residential purposes, such as a store or an office, or quarter used for the storage of business supplies or inventory, machinery, or agricultural products.

Hotels, Motels, Rooming Houses, Etc. – Occupied rooms or suites of rooms in hotels, motels, and similar places are classified as housing units only when occupied by permanent residents; for example, persons who consider the hotel as their usual place of residence or have no usual place of residence elsewhere. Vacant rooms or suites of rooms are classified as housing units only in those hotels, motels, and similar places in which 75 percent or more of the accommodations are occupied by permanent residents.

If any of the occupants in a rooming or boarding house live and eat separately from others in the building and have direct access, their quarters are classified as separate housing units.

Staff Living Quarters- The living quarter occupied by staff personnel within any group quarters are separate housing units if they satisfy the housing unit criteria of separateness and direct access; otherwise they are considered group quarters.

Comparability - The first Census of Housing in 1940 established the “dwelling unit”. The term was changed to “housing unit” has been modified slightly in succeeding censuses.

ACREAGE

The data on acreage was obtained through questionnaire. In 1990, this question was asked on two separate questions on both a 100-percent and sample basis. In 2000, it was asked on a sample basis in one question only. It was asked of occupied and vacant one-family houses and mobile homes. The land may consist of more than one tract or plot. These tracts or plots are usually adjoining; however they may be separated by a road or creek, or another piece of land. This question is used to exclude owner-occupied and renter-occupied one-family houses and mobile homes with 10 or more acres from certain statistics of financial characteristics.

Comparability

This question included mobile home occupants for the first time in 1990.

BOARDED-UP STATUS

Boarded-up status was determined for all vacant units. Boarded-up units have windows and doors covered by wood, metal, or masonry to protect the interior and to prevent entry into the building. A single-unit structure, a unit in a multi-unit structure, or an entire multi-unit structure may be boarded-up in this way. For certain census data products, boarded-up units are shown only for units in the

“Other vacant” category. A unit classified as “Usual Home elsewhere” can never be boarded up. (For more information, see the discussion under “Usual Home Elsewhere”). This question has been asked since the 1980 census.

BUSINESS ON PROPERTY

In 1990, this question was asked on a 100-percent basis. In 2000, it was asked on a sample basis only. It was asked at occupied and vacant one-family houses and mobile homes. This question is used to exclude owner-occupied one-family and mobile home units with business or medical offices from certain statistics on financial characteristics.

A business must be easily recognizable from the outside. It will usually have a separate outside entrance and have the appearance of a business, such as a grocery store, restaurant, or barbershop. It may be either attached to the house or mobile home or be located elsewhere on the property. Those housing units in which a room is used for business or professional purposes and which have no recognizable alterations to the outside, are not considered as having a business. Medical offices are considered businesses for tabulation purposes.

Comparability- Data on business on property have been collected since 1940.

CONTRACT RENT

The data on contract rent (also referred to as “rent asked” for vacant units) was asked at all occupied housing that were rented for cash rent and all vacant housing units that were for rent at the time of enumeration.

Housing units that are renter occupied without payment of cash rent are shown separately as “No cash rent” in census data products. The unit may be owned by friends or relatives who live elsewhere and who allow occupancy without charge. Rent-free houses or apartments may be provided to compensate caretakers, ministers, tenant farmers, sharecroppers, or others.

Contract rent is the monthly rent agreed to or contracted for, regardless of any furnishings, utilities, fees, meals, or services that may be included. For vacant units, it is the monthly rent asked for the rental unit at the time of enumeration.

If the contract rent includes rent for a business unit or for living quarters occupied by another household, the respondent was instructed to report that part of the rent estimated to be for his or her unit only. Respondents were asked to report rent only for the housing unit enumerated and to exclude any rent paid for additional units or for business premises.

If a renter pays rent to the owner of a condominium or cooperative, and the condominium fee or cooperative carrying charge is also paid by the renter to the owner, the respondent was instructed to include the fee or carrying charge.

If a renter receives payments from lodgers or roomers who are listed as members of the household, the respondent was instructed to report the rent without deduction for any payments received from the lodgers or roomers. The respondent was instructed to report the rent agreed to or contracted for even if paid by someone else such as friends or relatives living elsewhere, or a church or welfare agency.

In some tabulations, contract rent is presented for all renter-occupied housing units, as well as specified renter-occupied and specified vacant-for-rent units. Specified renter-occupied and specified vacant for-rent units exclude one-family houses on 10 or more acres. (For more information on rent, see the discussion under “Gross Rent” in census products containing sample data.)

Median and Quartile Contract Rent - The median divides the rent distribution into two equal parts. Quartiles divide the rent distribution into four equal parts. In computing median and quartile contract rent, units reported as “No cash rent” are excluded. Median and quartile rent calculations are rounded to the nearest dollar. (For more information on medians and quartiles, see the discussion under “Derived Measures”).

Aggregate Contract Rent - To calculate aggregate contract rent, the amount assigned for the category “less than \$80” is \$50. The amount assigned to the category \$1,000 or more” is \$1,250 or more information on aggregates and means, see the discussion under “Derived Measures”).

Comparability- Data on this item have been collected since 1940. For 1990, quartiles were added because the range of rents and values in the United States has increased in recent years. Upper and lower quartiles can be used to note large rent and value differences among various geographic areas.

DURATION OF VACANCY

The data for duration of vacancy (also referred to as “months vacant”) were completed by census enumerators.

The statistics on duration of vacancy refer to the length of time (in months and years) between the date the last occupants moved from the unit and the time of enumeration. The data, therefore, do not provide a direct measure of the total length of time units remain vacant.

For newly constructed units which have never been occupied, the duration of vacancy is counted from the date construction was completed. For recently converted or merged units, the time is reported from the date conversion or merger was completed. Units occupied by an entire household with a usual home elsewhere are assigned to the “Less than 1 month” interval.

Compatibility – Similar data have been collected since 1960. In 1970 and 1980 these data were shown only for year-round housing units. In 1990 these data are shown for all housing units.

MEALS INCLUDED IN RENT

The data on meals include in the rent was asked as a write in response in 2000 rather than a categorical response as was the case in 1990. It was asked on a sample basis rather than 100% as in 1990.

The statistics on meals included in rent are presented for specified renter-occupied and specified vacant-for-rent units. Specified renter-occupied and specified vacant-for-rent units exclude one-family houses on 10 or more acres. (For more information, see the discussion under “Contract Rent.”)

Comparability- This item was added in 1990. It is intended to measure “congregate” housing where the rent includes meals and other services such as transportation, shopping, and recreation.

PERSONS IN UNIT

This item is based on the 100-percent count of persons in occupied housing units. All persons occupying the housing unit are counted, including the householder, occupants related to the householder, and lodgers, roomers, boarders, and so forth.

The data on “persons in unit” show the number of housing units occupied by the specified number of persons. Figures for “persons in unit” match those for “persons in household” for 100-percent data products. In sample products, they may differ because of the weighting process.

Median Persons in Unit - In computing median persons in unit, a whole number is used as the midpoint of an interval; thus a unit with 4 persons is treated as an interval ranging from 3.5 to 4.5 persons. Median person is rounded to the nearest hundredth. (For more information on medians, see the discussion under “Derived Measures.”)

Persons in Occupied Housing Units – This is the total population minus those persons living in group quarters. “Persons per occupied housing unit” is computed by dividing the population living in housing units by the number of occupied housing units.

PERSONS PER ROOM

“Persons per room” is obtained by dividing the number of persons in each occupied housing unit by the number of rooms in the unit. Persons per room is rounded to the nearest hundredth. The figures shown refer, therefore, to the number of occupied housing units having the specified ratio of person per room.

Mean Persons Per Room - This is computed by dividing persons in housing units by the aggregate number of rooms. This is intended to provide a measure of utilization. A higher mean may indicate a greater degree of utilization or crowding; a low mean may indicate under-utilization. (For more information on means, see the discussion under “Derived Measures”)

ROOMS

This question was asked on a 100-percent basis in 1990, whereas it is asked on a sample basis in 2000. The statistics on rooms are in terms of the number of housing units with a specified number of rooms. The intent of this question is to count the number of whole rooms used for living purposes.

For each unit, rooms include living rooms, dining rooms, kitchens, bedrooms, finished recreation rooms, enclosed porches suitable for year-round use, and lodger’s rooms. Excluded are strip or Pullman kitchens, bathrooms, open porches, balconies, halls or foyers, utility rooms, unfinished attics or basements, or other unfinished space used for storage. A partially divided room is a separate room only if there is a partition from floor to ceiling, but not if the partition consists solely of shelves or cabinets.

Median Rooms - This measure divides the room distribution into two equal parts, one-half of the cases falling below the median number of rooms and one-half above the median. In computing median rooms, the whole number is used as the midpoint of the interval: thus the category “3 rooms” is treated as an interval ranging

from 2.5 to 3.5 rooms. Median rooms are rounded to the nearest tenth. (For more information on medians, see the discussion under “Derived measures.”)

Aggregate Rooms - To calculate aggregate rooms, an arbitrary value of “10” is assigned to rooms for units falling within the terminal category, “9 or more.” (For more information on aggregates and means, see the discussion under “Derived Measures”.)

Comparability- Data on room have been collected since 1940. In 1970 and 1980, these data were shown only for year-round housing units. In 1990, these data were shown for all housing units.

TENURE

The data for tenure were obtained from questionnaire item H4 which was asked at all occupied housing units. All occupied housing units are classified as either owner occupied or renter occupied.

Owner Occupied – A housing unit is owner occupied if the owner or co-owner lives in the unit even if it is mortgaged or not fully paid for. The owner or co-owner must live in the unit and usually is the person listed in column 1 of the questionnaire. The unit is “Owned by you or someone in this household with a mortgage or loan” if it is being purchased with a mortgage or some other debt arrangement such as a deed of trust, trust deed, contract to purchase, land contract or purchase agreement. The unit is also considered owned with a mortgage if it is built on leased land and there is a mortgage on the unit.

A housing unit is “Owned by you or someone in this household free and clear (without a mortgage)” if there is no mortgage or other similar debt on the house, apartment, or mobile home including units built on leased land if the unit is owned outright with a mortgage. Although owner-occupied housing units are divided between mortgaged and owned free and clear on the questionnaire, census data products containing 100-percent data show total owner-occupied counts. More extensive mortgage information was collected on the long-form questionnaire and is shown in census products containing sample data.

Renter Occupied – All occupied housing units which are not owner occupied, whether they are rented for cash rent or occupied without payment of cash rent, are classified as renter occupied. “No cash rent” units are separately identified in the rent tabulations. Such units are generally provided free by friends or relatives or in exchange for services such as a resident manager, caretaker, minister, or tenant farmer. Housing units on military bases also are classified in the “No cash rent” category.

“Rented for cash rent” includes units in continuing care, sometimes called life care arrangements. These arrangements usually involve a contract between one or more individuals and a health services provider guaranteeing the individual shelter, usually a house or apartment and services, such as meals or transportation to shopping or recreation.

Comparability- Data on tenure have been collected since 1890. In 1970, the question on tenure also included a category for condominium and cooperative ownership. In 1980, condominium units and cooperatives were dropped from the tenure item and since 1980, only condominium units are identified in a separate question.

For 1990, the response categories were expanded to allow the respondent to report whether the unit was owned with a mortgage or free and clear (without a mortgage). The distinction between units owned with a mortgage and units owned free and clear was added in 1990 to improve the count of owner-occupied units. Research after the 1980 census indicated some respondents did not consider their units owned if they had a mortgage.

UNITS IN STRUCTURE

The data on units in structure was asked on a sample basis in 2000. It had been asked on a 100-percent basis in 1990. A structure is a separate building that either has open

spaces on all sides or is separated from other structures by dividing walls that extend from ground to roof. In determining the number of units in a structure, all housing units, both occupied and vacant, are counted. Stores or office space are excluded.

The statistics are presented for the number of housing units in structures of specified type and size, not for the number of residential buildings.

1-Unit, Detached - This is a 1-unit structure detached from any other structure, which is with open space on all four sides. Such structures are considered detached even if they have an adjoining shed or garage. A one-family house which contains a business is considered detached as long as the building has open space on all four sides. Mobile homes or trailers to which one or more permanent rooms have been added or built are also included.

1-Unit Attached - This is a 1-Unit structure which has one or more wall extending from ground to roof separating it from adjoining structures. In townhouses (also known as row houses), double houses (also known as duplexes), or house attached to nonresidential structures, each house is a separate attached structure if the dividing or common wall goes from ground to roof.

2 or More Units- These are units in structures containing 2 or more housing units further categorized as units in structures with 2, 3 or 4, 5 to 9, 10 to 19, 20 to 49, and 50 or more units.

Mobile Home or Trailer- Both occupied and vacant mobile homes to which no permanent rooms have been added are counted in this category. Mobile homes used only for business purposes or for extra sleeping space and mobile homes for sale on a dealer's lot at the factory, or in storage are not counted in the housing inventory.

Boat, RV Van - This category is self explanatory. It was asked on a sample basis only in 2000.

Comparability - Data on units in structure have been collected since 1940 and on mobile homes and trailers since 1950. In 1970 and 1980, these data were shown only for year-round housing units. In 1980, the data were selected on a sample basis. In 1990, these data are shown for all housing units. In 1980 and 2000 the data were collected on a sample basis only. The category, "Boat, tent, van, etc." was replaced in 1990 by the category, "Other". In 2000, "Other" was reverted back to "Boat,

USUAL HOME ELSEWHERE

The data for usual home elsewhere obtained from questionnaire item B, which was completed by census employees. A housing unit temporarily occupied at the time of enumeration entirely by persons with a usual residence elsewhere, is classified as vacant. The occupants are classified as having a "Usual home elsewhere" and are counted at the address of their usual place of residence. Typical examples are people in a vacation home, person renting living quarters temporarily for work, and migrant workers.

Limitation of the Data – evidence from previous censuses suggest that in some areas, Enumerators marked units as "vacant-usual home elsewhere" when they should have marked "vacant-regular".

Comparability - Data for usual home elsewhere were tabulated for the first time in 1980.

VACANCY STATUS

The data on vacancy status were obtained from questionnaire item C1, which was completed by census enumerators. Vacancy status and other characteristics of vacant units were determined by enumerators obtaining information from landlords, owners, neighbors, rental agents, and others. Vacant units are subdivided according to their housing market classification as follows.

For Rent – These are vacant units offered “for rent” and vacant units offered either “for rent or for sale.”

For Sale Only – These are vacant units being offered “for sale only,” including units in cooperatives and condominium projects if the individual units are offered “for sale only”.

Rented or Sold, Not Occupied – If any money rent has been paid or agreed upon but the new renter has not moved in as of the date of enumeration, or if the unit has recently been sold but the new owner has not yet moved in the vacant unit is classified as “rented or sold, not occupied.”

For Seasonal, Recreational, or Occasional Use- These are vacant units used or intended for use only in certain seasons or for weekend or other occasional use throughout the year. Seasonal units include those used for summer or winter sports or recreation, such as beach cottages and hunting cabins. Seasonal units may also include quarters for such workers as herders and loggers.

For Migrant Workers – These include vacant units intended for occupancy by migratory workers employed in farm work during the crop season. Work in a cannery, a freezer plant, or a feed processing plant is not farm work.

Other Vacant- If a vacant unit does not fall into any of the classifications specified above, it is classified as “other vacant.” For example, this category includes units held for occupancy by a caretaker or janitor, and units held for personal reasons of the owner.

Homeowner Vacancy Rate - This is the percentage relationship between the number of vacant units for sale and the total homeowner inventory. It is computed by dividing the number of vacant units for sale only by the sum of the owner-occupied units and the number of vacant units that are for sale only.

Rental Vacancy Rate - This is the percentage relationship of the number of vacant units for rent to the total rental inventory. It is computed by dividing the number of vacant units for rent by the sum of the renter-occupied units and the number of vacant units for rent.

Comparability – Data on vacancy status have been collected since 1940. For 1990, the category “seasonal/recreational/occasional use, combined vacant units classified in 1980 as “seasonal or migratory” and “held of occasional use”. Also in 1970 and 1980, housing characteristics were generally presented only for year-round units. In 1990, housing characteristics are shown for all housing units.

VALUE

This question was asked on sample basis in 2000. It was asked on a 100-percent basis in 1990. The data on value (also referred to as “price asked” for vacant units) were obtained from a questionnaire item which was asked at occupied housing units that were owned, being bought or vacant for sale at the time of enumeration. Value is the respondent’s estimate of how much the property (house and lot, mobile home and lot, or condominium unit) would sell for if it were for sale. If the house or mobile home is owned or being bought, but the land on which it sits is not, the respondent was asked to estimate the combined value of the house or mobile home and the land. For vacant units, value is the price asked for the property.

Value is tabulated separately for all owner-occupied and vacant-for-sale-only housing units, owner-occupied and vacant-for-sale mobile homes or trailers, and specified owner-occupied and specified vacant-for-sale-only housing units. Specified owner-occupied and specified vacant-for-sale-only housing units include only one-family houses on less than 10 acres without a business or medical office on the property. The data for “specified” units exclude mobile homes, houses with a business or medical office, houses on 10 or more acres, and housing units in multi-unit building.

Median and Quartile value- The median divides the value distribution into two equal parts. Quartiles divide the value distribution into four equal parts. These measures are rounded to the nearest hundred dollars. (For more information on medians and quartiles, see the discussion under “Derived Measures”.)

Aggregate Value – to calculate aggregate value, the amount assigned for the category “Less than \$10,000” is \$9,000. The amount assigned to the category “\$500,000 or more” is \$600,000. Mean value is rounded to the nearest whole dollar. (For more information on aggregates and means, see the discussion under “Derived Measures.”)

Comparability- In 1980, value was asked only at owner-occupied or vacant-for-sale one-family houses on less than 10 acres with no business or medical office on the property and at all owner-occupied or vacant-for-sale condominium housing units. Mobile homes were excluded. Value data were presented for specified owner-occupied housing units, specified vacant-for-sale only housing units and owner-occupied condominium housing units.

In 1990, the question was asked at all owner-occupied or vacant-for-sale-only housing units with no exclusions. Data presented for specified owner-occupied and specified vacant-for-sale-only housing units will include one-family condominium houses but not condominiums in multi-unit structures since condominium units are now identified only in long-form questionnaires.

For 1990, quartiles have been added because the range of values and rents in the United State has increased in recent years. Upper and lower quartiles can be used to note large value and rent differences among various geographic areas.

DERIVED MEASURES

Census data products include various derived measures such as medians, means, and percentages, as well as certain rates and ratios. Derived measures which round to less than 0.1, are not shown but indicated as zero. In printed reports, zero is indicated by showing a dash (-).

Interpolation

Interpolation is frequently used in calculating medians or quartiles base on interval data and in approximating standard errors from tables. Linear interpolation is used to estimate values of a function between two known values. "Pareto interpolation" is an alternative to linear interpolation. It is used by the Census Bureau in calculating median income within intervals wider than \$2,500. In Pareto interpolation, the logarithm of the median is derived by interpolating between the logarithms of the upper and lower income limits of the median category.

Mean

This measure represents an arithmetic average of a set of values. It is derived by dividing the sum of a group of numerical items (or aggregate) by the total number of items. Aggregates are used in computing mean values. For example, mean family income is obtained by dividing the aggregate of all income reported by persons in families by the total number of families. (Additional information on means and aggregates is included in separate explanations of many population and housing subjects.)

Median

This measure represents the middle value in a distribution. The median divides the total frequency into two equal parts; one-half of the cases exceed the median. The median is computed on the basis of the distribution as tabulated, which is sometimes more detailed than the distribution shown in specific census publications and other data products.

In reports, if the median falls within the upper interval of an open-ended distribution, the median is shown as the initial value of the interval followed by a plus sign (+), or if within the lower interval, the median is shown as the upper value of the category followed by a minus sign (-). For summary tape files, if the median falls within the upper or lower interval, it is set to a specified value. (Additional information on medians is included in the separate explanations of many population and housing subjects.)

Percentages, Rates, and Ratios

These measures are frequently presented in census products and are used to compare tow number or two sets of measurements. These comparisons are made in two ways: (1) subtraction which provides an absolute measure of the difference between two items and (2) the quotient of two numbers which provides a relative measure of difference.

Quartile

This measure divides a distribution into four equal parts. The first quartile (or lower quartile) is the value that defines the upper limit of the lowest one-quarter of the cases. The second quartile is the median. The third quartile (or upper quartile) defines the lower limit of the upper one-quarter of the cases in the distribution. The difference between the upper and lower quartiles is called the interquartile range. This interquartile range is less affected by wide variations than is the mean. Quartiles are presented for certain financial characteristics such as housing value and rent.

